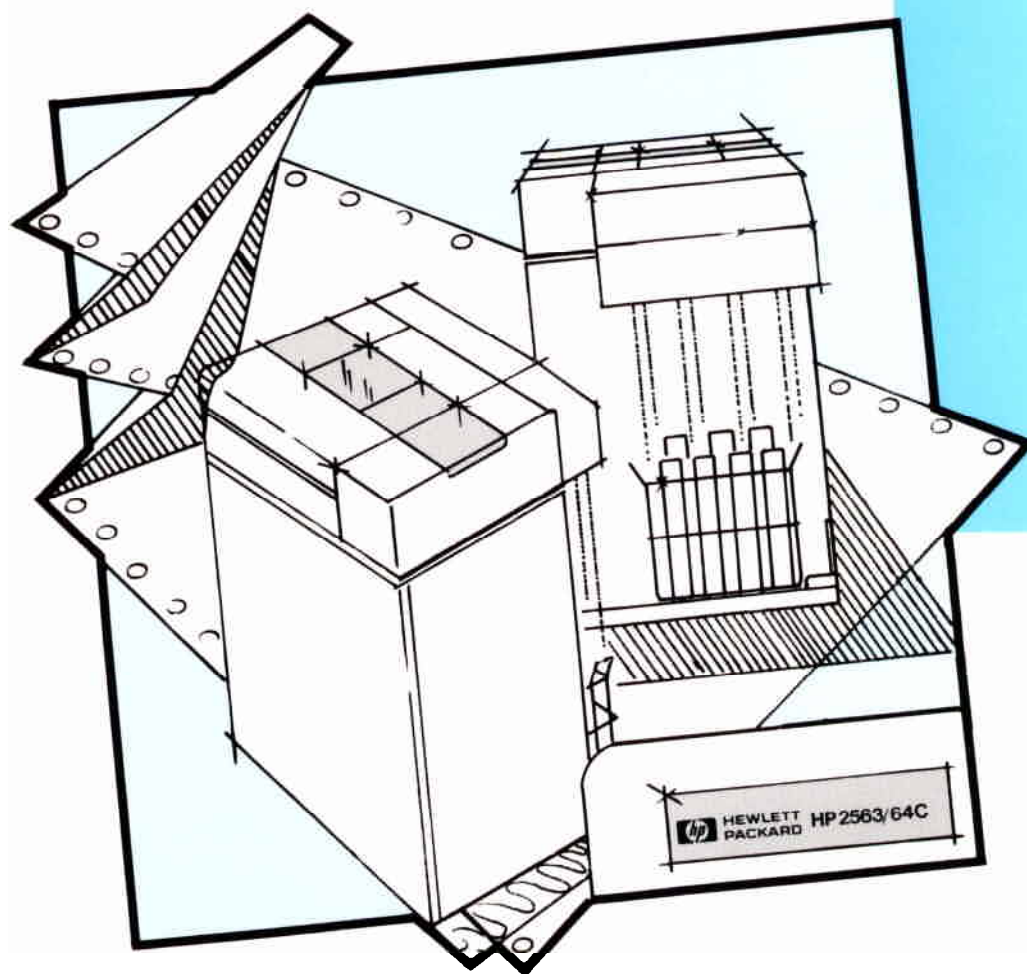


HP 2563C/HP 2564C Operator's Manual



HP2563C/HP2564C OPERATORS MANUAL



HEWLETT
PACKARD

HP Part No. **02564-90988**
Printed in USA April 1990

1st edition

PUBLICATION HISTORY

Changes in text to document updates subsequent to the initial release are supplied in new editions of the manual. The printing history (edition) of the manual is shown on the title page. The last edition date itemized reflects the machine configuration documented in the manual.

FOR U.S.A. ONLY

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Inside This Manual

The information in this manual is divided into the following chapters:

Chapter 1: General Information

This chapter provides a list of related documentation that may be useful to you. This is followed by a functional description of the HP2563C/HP2564C printer, a list of options and supplies, and a word about service and operator safety.

Chapter 2: Getting the Most From Your Printer and Paper

To determine the best location for your printer and what kind of paper to use, read Chapter 2.

Chapter 3: Installing the Paper Stacking Aid

Installation instructions for your Paper Stacking Aid are found in Chapter 3.

Chapter 4: Preparing the Printer for Operation

Chapter 4 helps you begin using the printer. It explains how to load the ribbon cartridge and paper, adjust the printer for different forms position and thicknesses, and set Top of Form.

Chapter 5: Using the Paper Stacking Aid

Once your paper is loaded correctly in the printer, follow the instructions in this chapter to set-up your stacking aid for optimum paper stacking performance.

Chapter 6: Configuring Printer Features

This chapter explains how to program your printer to perform various tasks. It also describes how to set the HP-IB interface address and run sub-tests.

Chapter 7: Using The Printer

Chapter 7 discusses the use of the Operator Control Panel and explains each control key in detail. After this there are sections on power fail recovery and reset, Vertical Forms Control (VFC), and optimizing print quality.

Chapter 8: In Case Of Difficulty

This chapter describes some general problems you may experience with your printer and explains what to do when printer errors occur. All printer error numbers are explained; even those that do not show up in the display window.

Appendix A: Printer Specifications

This appendix lists detailed printer specifications, including physical characteristics, environmental requirements, electrical hook-up, power consumption, and performance data.

**Appendix B:
Paper Specifications**

Appendix B describes the paper requirements for the printer and gives information about specialty forms.

**Appendix C:
Troubleshooting Paper
Stacking Problems**

Written in a question and answer format, this appendix describes common paper stacking problems and suggests possible ways to solve them.

Glossary

The glossary lists terms pertaining to paper and the Paper Stacking Aid.

Index

Use the index to quickly locate primary sources of information.

Self Test Printout

This is a simulated copy of a standard self-test run on an HP2563C/HP2564C printer. You might find it useful for comparison purposes.

**Operator Control Panel
User's Aid**

This fold-out page is provided as a quick reference for using the Operator Control Panel. All operator functions are shown in table form. For easy access, post a copy near your printer.

Reader Comment Sheet

A postage-paid comment form is available for you to send us feedback about this manual. Please use it to relay any comments or suggestions you may have for us.

**Sales and Service
Offices**

This list provides a reference to Hewlett-Packard's Sales and Service offices throughout the world. If you have any questions or need information, contact the nearest office.

Related Manuals

- *HP2563A/B Service Manual, 02563-90924*
- *HP2564B Service Manual, 02564-90924*
- *HP256X Printer Family Technical Reference Manual, 02564-90905*
- *HP2563A/B Parts and Diagrams Manual, 02563-90926*
- *HP2564B Parts and Diagrams Manual, 02564-90926*
- *HP Label Card Manual, 26062-90902*
- *HP-IB Interface Manual, 26067-90901*
- *Multipoint Interface Manual, 26067-90902*
- *Parallel-Differential Interface Manual, 26067-90905*
- *Centronics Parallel Interface Manual, 26067-90906*
- *Dataproducts Parallel Interface Manual, 26067-90907*
- *RS232/422 Interface Manual, 26067-90921*

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GENERAL INFORMATION

Introduction

This manual contains information necessary to operate and perform preventive maintenance on the HP2563C/HP2564C line printer. Read it before using your printer so that you will be familiar with all its capabilities and features.

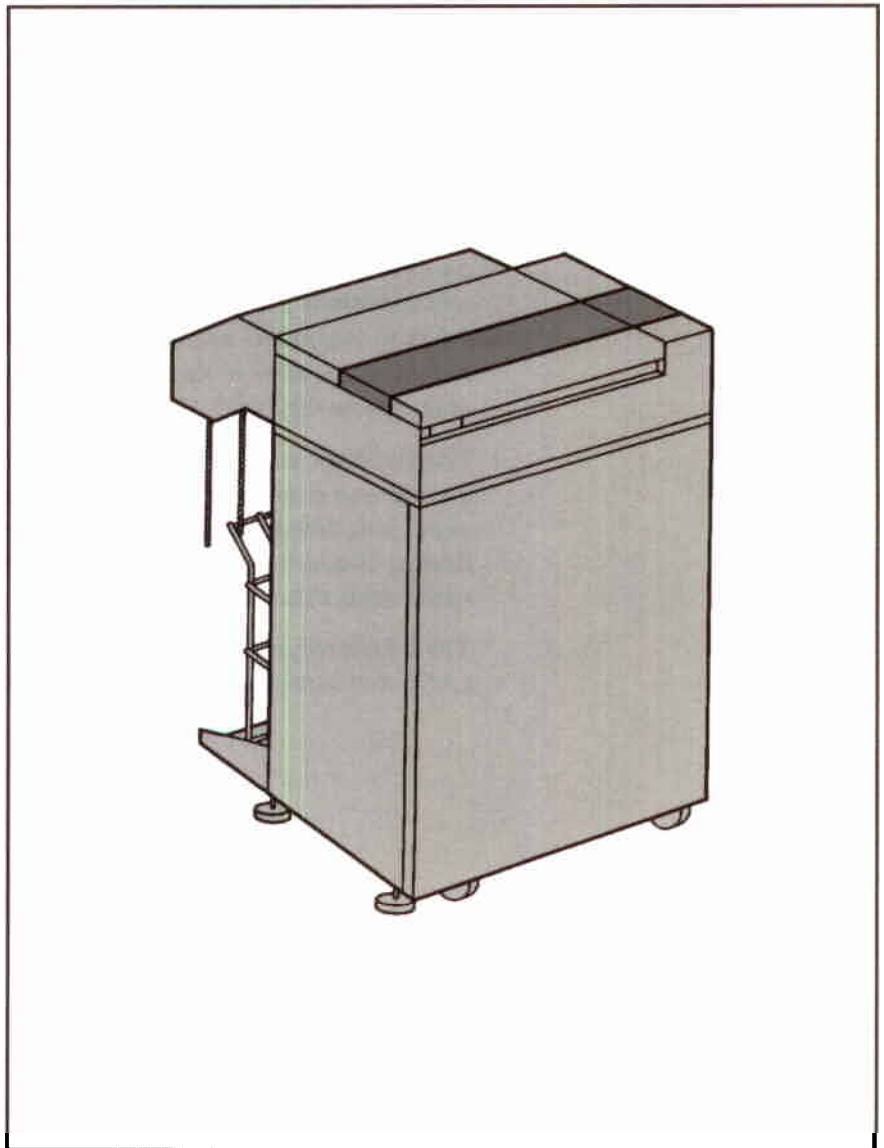


Figure 1-1. HP2563C/HP2564C Printer

Product Description

The HP2563C/HP2564C is a highly reliable, medium speed printer designed for use in many printing applications. It has several attractive features including:

- Multiple character sets requiring no mechanical font change
- Bar code printing capability
- HP Label card
- 16-channel vertical forms control (VFC)
- Normal and compressed print pitch (10 and 16.67 pitch)
- Paper jam detection
- Easy forms alignment
- Paper Stacking Aid to stack printer paper
- High speed draft quality character set
- Interface flexibility

Options

The HP2563C/HP2564C line printer is available in several configurations to match your individual application needs. These configurations are stated as options and are identified by a three-digit suffix to the model number. For example, HP2564C #001. The option numbers are marked on an identification tag which is located near the main power ON/OFF (1/0) switch on the back of the printer.

The standard model HP2563C/HP2564C includes a 16-channel VFC, normal and compressed printing features, raster graphics capabilities, paper jam detection, a Roman8 character set (Standard ASCII plus Roman Extension), compressed and double-size characters, and high speed draft characters.

The standard printer is configured for a 120 VAC, 50/60 Hz. operation, and comes equipped with a power cord and one ribbon cartridge.

The following tables show the available options for the HP2563C/HP2564C:

Table 1-1. Character Sets

Option #	Character Sets
001	Line Draw, Math, and Block character sets
002	Katakana8 character set (replaces Roman8 standard character set)
003	High density OCR character sets (requires OMR ribbon for dependable readability)
004	High density Roman8 character set
005	High density Italics, Roman8 character set
006	High density Katakana8 character set
008	Bar code printing capability (requires OMR ribbon for dependable readability)
009	Adds 12, 13.3 cpi with Roman8 character set
012	Adds 12, 15 cpi with Roman8 character set
013	Adds 13.3, 15 cpi with Roman8 character set
026	Cyrillic standard density (ECMA 113/86 character set)
027	Cyrillic high density (ECMA 113/86 character set)
028	Cyrillic standard density (ECMA 113/88 character set)
029	Cyrillic high density (ECMA 113/88 character set)
030	Arabic8, Line draw character set
031	Arabic8 (high density) character set
032	Turkish8, ASCII, Line draw character set
033	Turkish8 (high density) character set
034	Greek8, ASCII, Line draw character set
035	Greek8 (high density) character set
036	Hebrew8, ASCII, Line draw character set
037	Hebrew8 (high density) character set
038	Hebrew7, Line draw character set
039	Hebrew7 (high density) character set
043	East European standard density (ECMA 94/Latin2 character set)
044	East European high density (ECMA 94/Latin2 character set)

Note

The standard printer will accept one additional normal density character set ROM and three additional high density character set ROM's. Contact your Hewlett-Packard Sales or Service Representative for details.

Table 1-2. Power Supplies

Option #	Description
015	220 VAC, 50/60 Hz Operation
016	100 VAC, 50/60 Hz Operation
017	240 VAC, 50/60 Hz Operation

Table 1-3. Interface Subsystems

Option #	Description
046	HP-IB interface (standard), 4 metre cable included
049	RS232C interface subsystem
050	RS422A interface subsystem
053	Centronics Parallel interface subsystem
055	HP3000 Multipoint interface subsystem (HP2563C only)
100	HP1000 interface subsystem, parallel/differential
200	Series 200 Basic/Pascal HP-IB interface subsystem, 4 metre cable included
250	HP 250/260 HP-IB interface subsystem (HP2563C only), 4 metre cable included
264	HP 64000 HP-IB interface subsystem (HP2563C only)

Table 1-4. Convenience Options

Option #	Description
024	HP Label Card graphics enabling the printer to print varying sizes of characters, graphics, bar codes and lines using QMS(R)* Magnum(R)* language (cannot be installed at the same time as option 022 or 023)
068	Three-pack ribbon starter kit (92158A)
114	Deletes quiet cabinet, sound shroud, passive paper stacker, and adds non-quiet stand (HP2564C only)
510	Extended capabilities package (incl 004, 005, 008, & 068)
715	Service documentation (HP2563C): 02563-90924 and 02563-90926
715	Service documentation (HP2564C): 02564-90924 and 02564-90926

*QMS and MAGNUM are registered trademarks of QMS, Inc.

Supplies and Accessories

The supplies and accessories recommended for use with your printer are listed below. These are available from Hewlett-Packard's Direct Marketing Division (DMK) with direct phone service available to Hewlett-Packard customers within the continental United States. Orders may be taken from 9AM to 5PM in all United States time zones.

To place an order, call:

TOLL FREE - 800-538-8787

IN CALIFORNIA - (408) 738-4133 - Direct or Collect

Outside the United States, however, orders may be placed with your local Hewlett-Packard Sales and Service Office listed in back of this manual.

Ribbon Cartridges

There are two kinds of ribbon cartridges available for your printer: standard (text-only) and special applications (recommended for bar codes, OCR, archival applications). Three ribbons come in a box.

The part number for the standard, text-only, ribbon is 92158A. The special applications ribbon is 92158M. AFTER JULY 1, 1990, RIBBON PART NUMBERS CHANGE. FOR THE STANDARD, TEXT-ONLY, RIBBON, THE PART NUMBER IS 92162A. FOR THE SPECIAL APPLICATIONS RIBBON, THE PART NUMBER IS 92162M.

Paper

Table 1-5. Recommended Printer Paper

Part #	Description	Quantity
92157A	One-part, white 8.5 x 11 in., 18 lb. bond	2400 sheets/box
92157C	One-part, white 8.5 x 11 in., 20 lb. #1 bond	2400 sheets/box
9280-0218	One-part, green bar 9.9 x 11 in., 15 lb., 80 Column	3200 sheets/box
9280-0705	One-part, white 8.5 x 11 in., 15 lb., 72-column bond	3200 sheets/box
9320-1515	One-part, blue bar 14.9 x 11 in., 18 lb., 132-column	2400 sheets/box

See Appendix B for information on paper specifications.

Service

Hewlett-Packard offers maintenance agreements, “time and material” service, and other service agreements for the HP2563C and HP2564C printers. If you need service or have any questions regarding the servicing of your printer, contact the Hewlett-Packard Sales and Service Office nearest you. A list of these offices is provided at the back of this manual.

Operator Safety

Warning



For operator safety, close the top cover and printer cabinet door when the printer is powered on and operating. Keep hands, long hair, necklaces, and articles of clothing such as neckties and long sleeves out of the printer when it is running. DO NOT attempt to perform troubleshooting or maintenance procedures beyond those described in Chapter 8.

GETTING THE MOST FROM YOUR PRINTER AND PAPER

Printer Location

The HP2563C/HP2564C printer should be located in a clean, traffic-free environment, preferably an area not subjected to excessive shocks, vibrations or wide ranges of temperature. Air conditioning is not required to ensure reliable operation of this printer; however, the environmental specifications as outlined in Appendix A should not be exceeded.

Note



Make sure the printer sits level. The output paper stack will not stack correctly if the printer does not sit evenly on the floor.

The location of your printer must provide adequate operator access to both the front and rear of the printer. The area around the printer should be kept clean and dust free so that the air used to cool the printer will not contain excessive dust particles. The output paper stack should not be located near a heating or air conditioning vent as the moving air will disrupt paper movement.

Your printer and Paper Stacking Aid will perform best in an environment where the temperature range is 65° to 75° F (18° to 24° C) and humidity is 30% to 45%.

Printer Installation

Hewlett-Packard provides the original installation and testing of the printer at your site. However, if you need to move the printer to a new location, follow these procedures:

Moving the Printer

1. Record the printer configurations.

Before moving the printer, record key configuration values retained in memory. This will allow quick restoration in the event of a battery failure. Recording all configuration settings listed in Table 6-1 is recommended, however, configuration functions 20-29 are the most critical. These could affect system performance and stability and must be verified before connecting the printer to the operating system. Refer to Chapter 6, "Configuring Printer Features," for information on configuration settings. To find out which printer configuration parameters are saved in memory when power is turned off, turn to "Power On Parameters and Power Fail Recovery" on page 7-10.

2. Turn the printer “OFF.”

With the printer “off-line,” switch the main power ON/OFF (1/0) switch located on the back of the printer to the “OFF” (0) position. Unplug the power cable from both the AC outlet and the printer.

3. Disconnect the interface cable.

Unplug the printer’s interface cable from the rear of the printer.

4. Raise the levelers.

Turn the printer’s leveling feet counter-clockwise and raise them into the full UP position.

Caution



Before moving the printer, make sure the leveling feet are fully raised. Roll the printer from the side to minimize the possibility of tipping.

5. Install shipping blocks.

The printer is shipped with three foam blocks shown in their locations in Figure 2-1. The blocks were removed when the printer was unpacked and should have been saved in case of printer transportation. Re-install them for any major relocation of the printer as they provide protection from vibration damage.

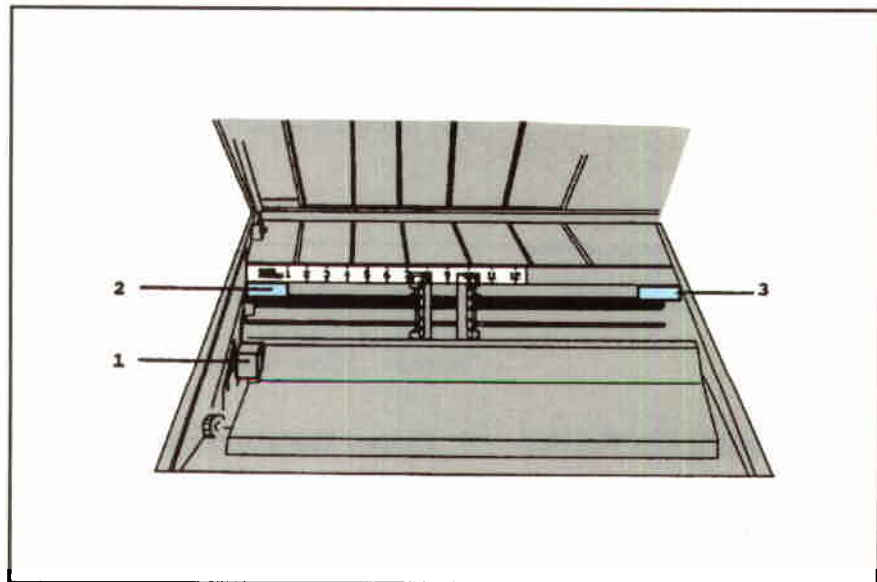


Figure 2-1. Installing Shipping Blocks

6. Move the printer.

Push the printer from the side to move it to its new location. The printer is more stable when rolled this way.

At New Location

1. **Remove the shipping blocks (if installed).**
2. **Connect the power cord.**

Connect the power cord to the AC power input jack on the back of the printer and plug the other end into the AC outlet.

3. **Lower the levelers.**

Turn the printer's leveling feet clockwise until all four wheels are just off the floor. Next, level the printer.

Note



For optimum performance of the Paper Stacking Aid, make sure the printer sits level on the floor. The output paper stack will not stack correctly if the printer is not level.

4. **Connect the interface cable.**

Connect the interface cable from the computer system to the interface connector on the back of the printer. If you have an HP-IB Interface, use the supplied shielded cable. Failure to use the appropriate cable could increase the level of radiated radio frequency interference (RFI) and could also make the printer more susceptible to electrostatic discharges.

5. **Load the ribbon and paper.**

Follow the directions starting on page 4-1 to load your ribbon and paper.

6. **Switch the printer "ON".**

Switch the main power ON/OFF (1/0) switch located on the back of the printer to the "ON" (1) position.

7. **Verify the configuration parameters.**

Verify printer configurations as recorded in step 1 of "Moving the Printer" on page 2-1.

8. **Run a sub-test.**

With the printer "off-line," press the **TEST** key on the Operator Control Panel. Use either **FINE ADJ.** key to choose any sub-test number (refer to page 6-9 for sub-test numbers and information). Press the **ENTER** key and the sub-test will begin to print out. Compare this printout with the self-test printout in the back of this manual. (Note that the self-test in the manual is a simulated copy of a standard printout and will not be exactly like the one you just ran. Yours will vary depending on which character set options are installed in your printer). If no error numbers are flashing in the display window, and the print quality of the characters on the sub-test is good, the printer is ready for operation.

Printer Power

The HP2563C printer has a maximum (peak) power requirement of 600 VA (volt amps). The HP2564C printer has a maximum (peak) power requirement of 1100 VA. One of the following power sources must be available to operate the printer: 100, 120, 220, or 240 VAC (+5%/-10%). Your printer has been shipped to match the power source specified in your order. If it becomes necessary to change to a different power source, contact your Hewlett-Packard Service Representative.

Note



Changing to a different power source is not covered under warranty or Hewlett-Packard service agreements.

See Appendix A for more power requirement information.

Paper Requirements

Selecting the right printer paper is one of the most important factors in obtaining good paper stacking performance. The paper that you choose needs to acclimate to your location and the type of printing you are doing. The Paper Stacking Aid is only successful if the paper falls and folds correctly into the paper basket. Because some variables in paper may significantly affect print quality or the way the paper handles, it is very important to understand the many aspects that can alter paper performance.

The printer uses continuous fan-fold, edge-perforated paper varying in width from 3.0 inches (7.6 cm) to 16.75 inches (42.4 cm). Although the printer accepts paper as wide as 16.75 inches (42.4 cm), the farthest right it can print is 14.75 inches (37.32 cm). It will handle paper weights in the range of 15 to 100 pound (57 to 380 gm/sq metre) and multi-part forms up to six parts may be used, with a maximum pack thickness of .024 inches (.61 mm).

Note



Hewlett-Packard does not recommend the use of untested carbonless multi-part forms. This is due to the varying manufacturing quality and storage considerations associated with this type of paper.

If paper will be printed in humidity extremes (greater than 55% or less than 20%) it should be thoroughly tested first. Paper to be used in high humidity areas should be tested for satisfactory feeding and handling. Paper to be used in low humidity areas should be tested for static build-up to determine potential paper stacking problems.

In general, before you purchase large quantities of paper, test it for satisfactory feeding, print quality, and stacking ability. Any special application paper, such as multi-part forms, labels, etc., should also be thoroughly tested prior to volume purchase.

Note



For best paper performance, use a higher weight paper in high humidity areas.

Refer to Appendix B for additional information on paper.

Paper Storage and Handling

The performance of the printer depends on the condition of the paper it uses. Here are some recommendations for packaging, storing, and handling your paper.

Packaging

To avoid damage during handling, top and bottom fillers should be used in continuous paper cartons to hold the stack firmly in place. Because the physical condition of the paper affects printer reliability, correct packaging ensures that the paper remains flat and is not damaged along the edges.

Storing

Do not store cartons directly on the floor, and do not stack more than six high. Each carton should be set upright squarely on the one underneath. Placing additional weight on top of the stack of cartons can damage the paper.

Environmental Conditions

Since performance is affected by environmental conditions, paper should be protected from extremes in temperature and humidity.

Store paper in an environment similar to the printer's controlled environment for four days prior to use. This conditioning allows moisture content in the paper to stabilize. Your printer is intended for operation in a controlled environment where temperatures range from 50° to 122° F (10° to 50° C) and the relative humidity is 30% to 80% non-condensing. For best results, however, the cartons should be stored and used at 65° to 75° F (18° to 24° C), with a relative humidity of 30% to 45% (also the best environment for your printer).

In the event the printer is in an environment subject to extremes of relative humidity or temperature, it may be necessary to store the forms in a controlled environment and withdraw them on an as-needed basis.

Shipping

When paper is shipped through different environments, the entire stack of cartons on the pallet should be plastic wrapped. When shipping across large bodies of water, individual cartons should be wrapped as well.

Paper Specifications

Refer to Appendix B for information.

INSTALLING THE PAPER STACKING AID

Introduction

The Paper Stacking Aid (Figure 3-1), provides your printer with a convenient holder for paper output. With a capacity to stack up to 12 inches (2000 sheets) of 18 pound paper, it makes the removal of printed documents simple and quick.

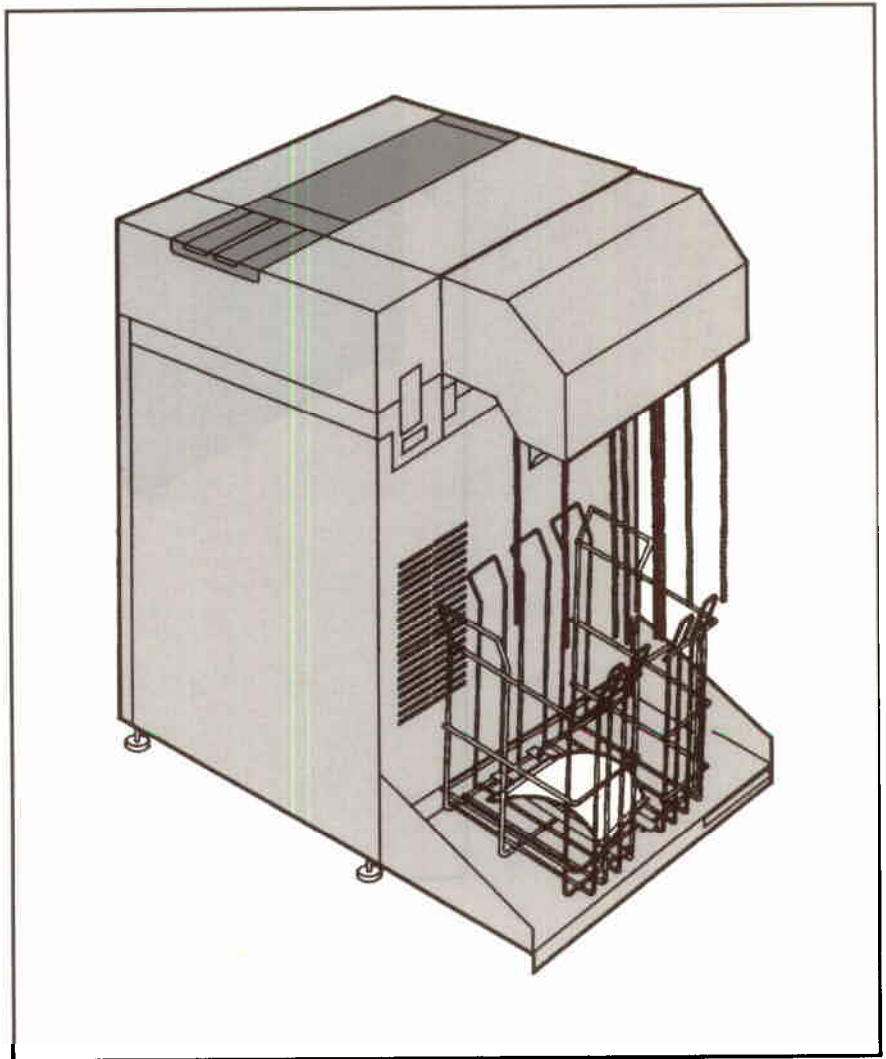


Figure 3-1. Paper Stacking Aid

Parts List

The following illustration shows the parts of the stacking aid (Figure 3-2). These parts should be included in your stacking aid box. Refer to Table 3-1, on the next page, for part descriptions.

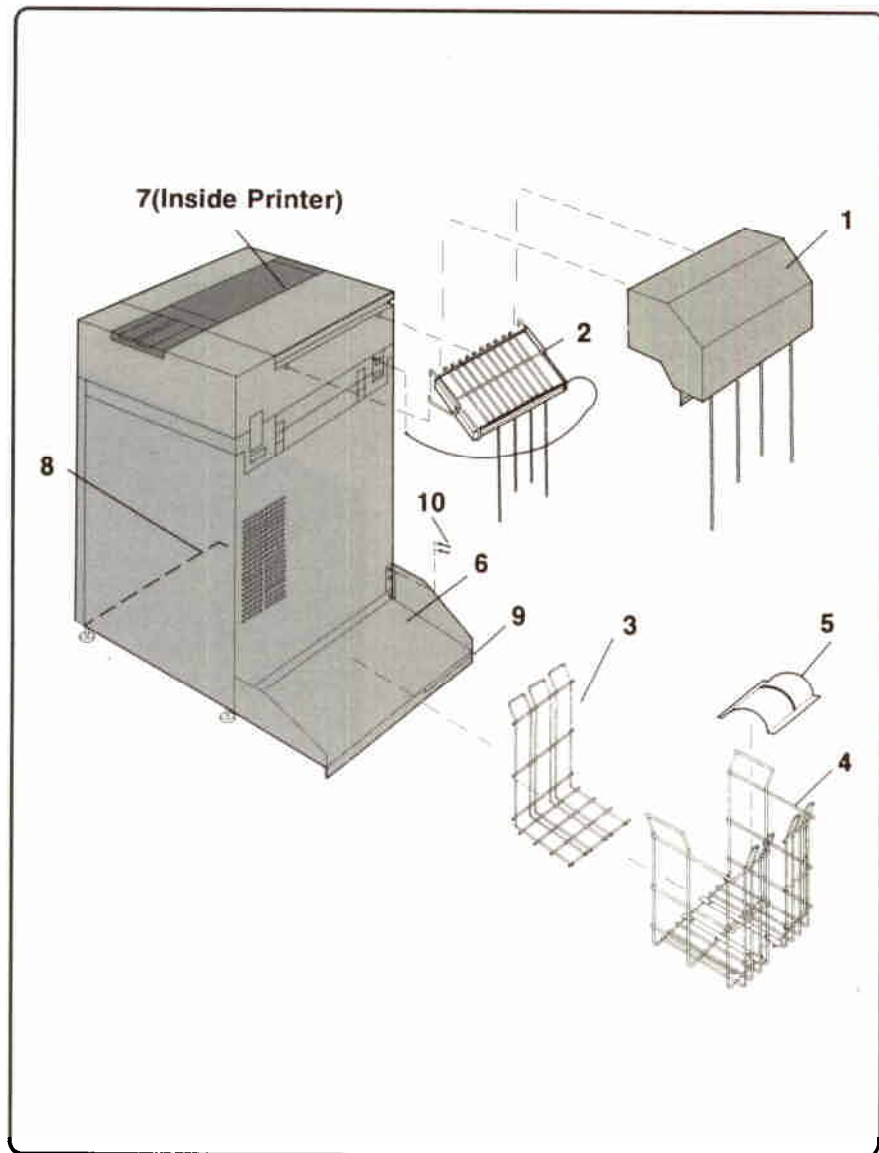


Figure 3-2. Parts of the Paper Stacking Aid

3-2 INSTALLING THE PAPER STACKING AID

Table 3-1 references Figure 3-2, Parts of the Paper Stacking Aid. Use this table to identify the parts in the illustration. Also, If a part is missing from your box or you want information on replacing a part, you can have the number available when speaking to a service representative.

Table 3-1. Parts List

Reference # To Figure 3-2	Quantity	Part No.	Description
1	1	02564-60225	Sound Shroud Assembly
2	1	02564-60234	Wire Form Assembly
3	1	02564-00189	Backstop
4	1	02564-00188	Paper Basket
5	1	02564-00187	Forms Break
6	1	02564-00194	Paper Tray (alignment label attached)
7	1	02564-00178	Paper Position Label (not shown)
8	1	02564-00179	Input Paper Label (not shown)
9	1	02564-00180	Paper Tray Label (attached to paper tray)
10	4	0515 - 0758	M5 Screws

Installing Your Paper Stacking Aid

Follow these instructions to assemble your stacking aid.

Warning



Make sure the printer's power is OFF and the power cord is unplugged from the wall before assembling the Paper Stacking Aid. Installing the parts with the power on may cause injury to yourself or the equipment.

Caution



The paper tray gives the printer stability. Install it before any other part of your Paper Stacking Aid.

1. Start the screws in the paper tray.

Use a #2 Pozidrive screwdriver to start the four screws in the paper tray (Figure 3-3).

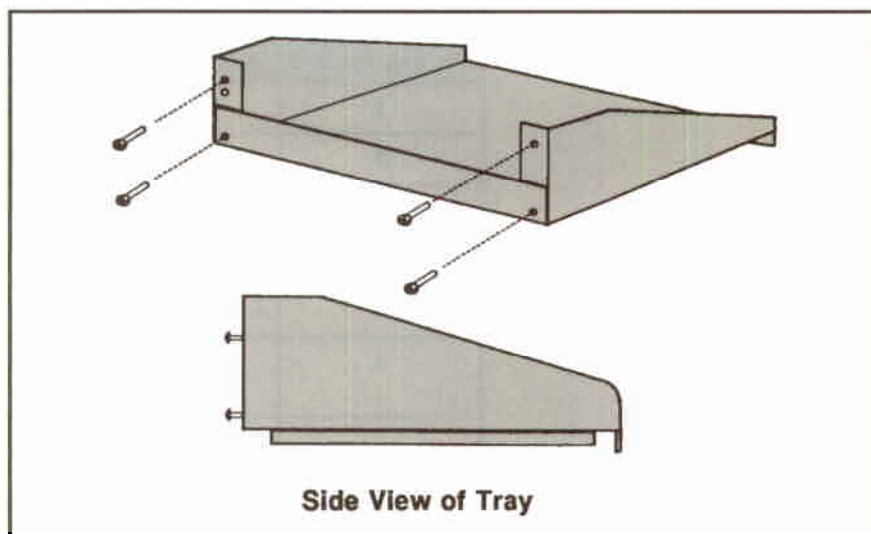


Figure 3-3. Starting the Screws in the Paper Tray

2. Insert the screws into the key slots.

Align the screws to the holes in the back panel of the printer and insert into the key slots. Drop into place (Figure 3-4).

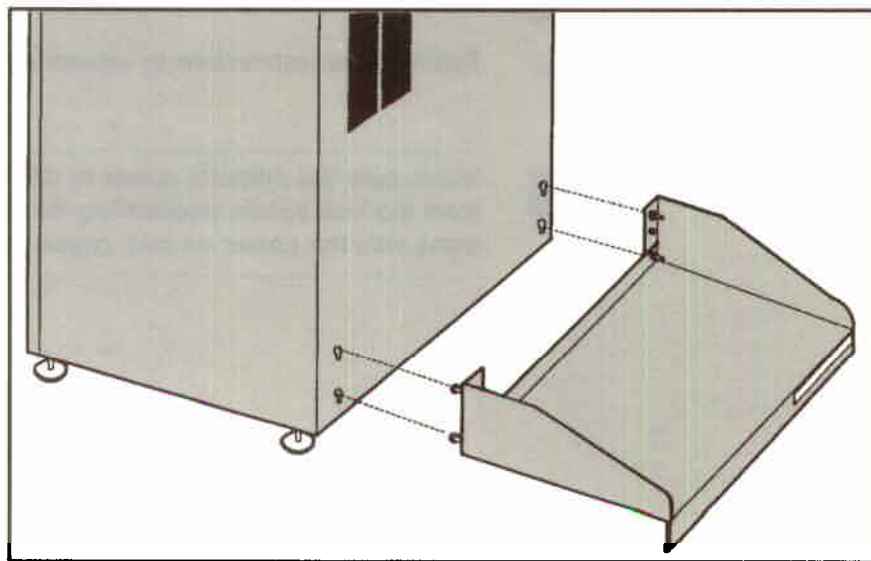


Figure 3-4. Attaching the Paper Tray

3. Attach the paper tray to the printer.

Tighten the screws to the back panel from inside the printer stand. You will need to hold back the soundproofing foam in order to reach the screws (Figure 3-5). (Some cabinets may not have foam).

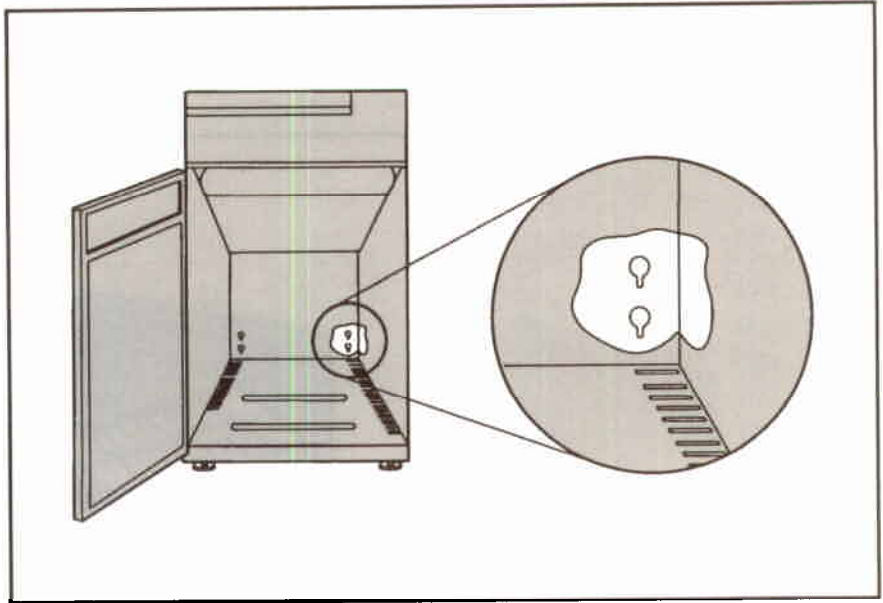


Figure 3-5. Mounting Paper Tray to Printer

4. Attach the wire form.

Hook the wire form into the holes on the top cover (Figure 3-6). Make sure the four chains hang freely.

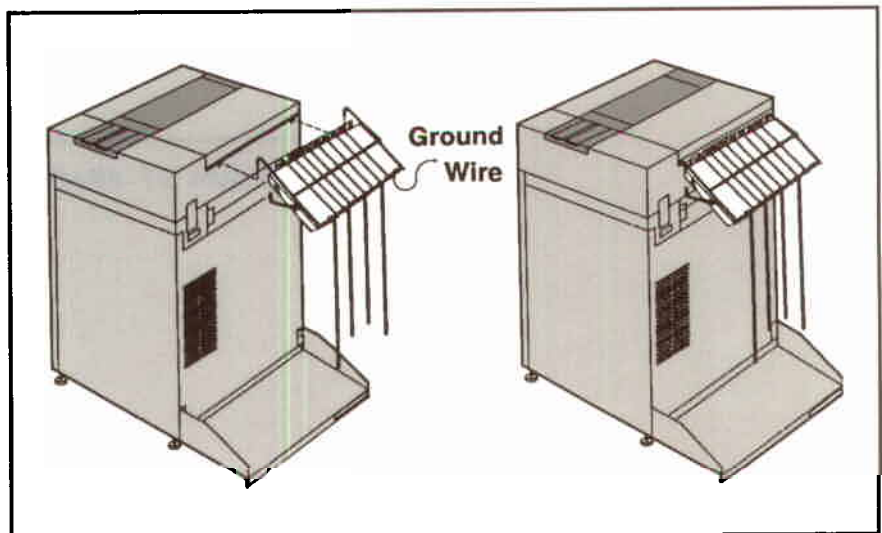


Figure 3-6. Attaching Wire Form

Note



The ground wire removes static from the paper and stacking aid. Attachment is essential for reliable operation of the stacker.

5. Hook up the ground wire.

Locate the small screw next to the power switch on the back panel of the printer. Insert the ground wire onto the spade lug underneath the screw (Figure 3-7).

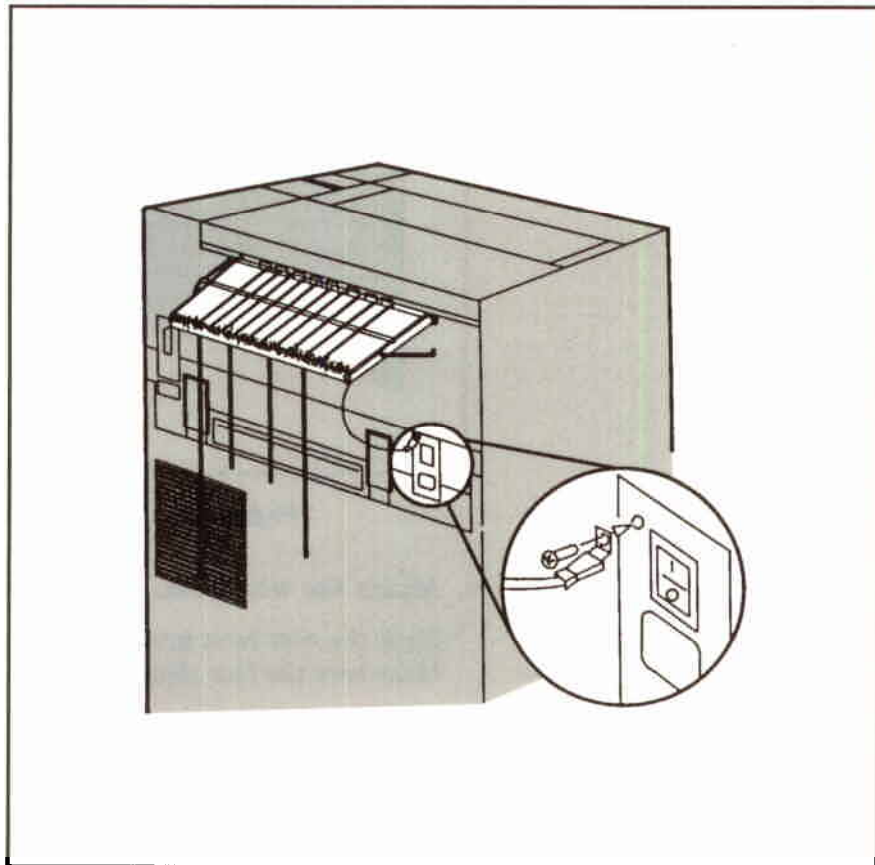


Figure 3-7. Attaching the Ground Wire

6. Install the sound shroud.

Slide the sound shroud directly over the wire form (Figure 3-8). Push down firmly until it snaps into place. Make sure it fits tight against the back of the printer and flush with the top of the printer. The four chains should hang freely.

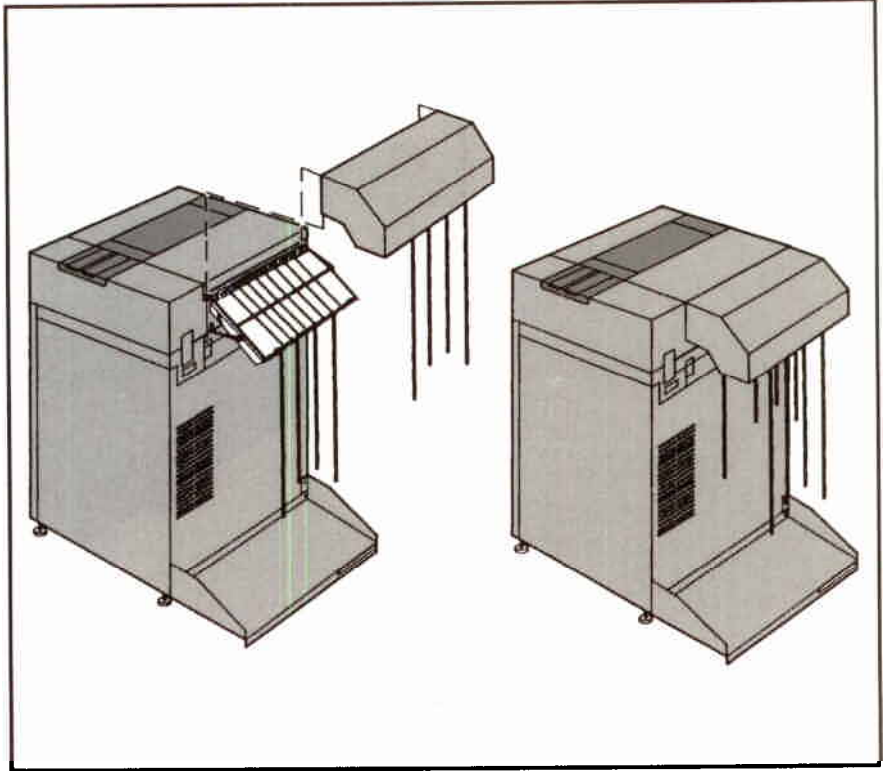


Figure 3-8. Installing the Sound Shroud

7. Place the backstop onto the paper tray.

Position it 1 inch from the back panel.

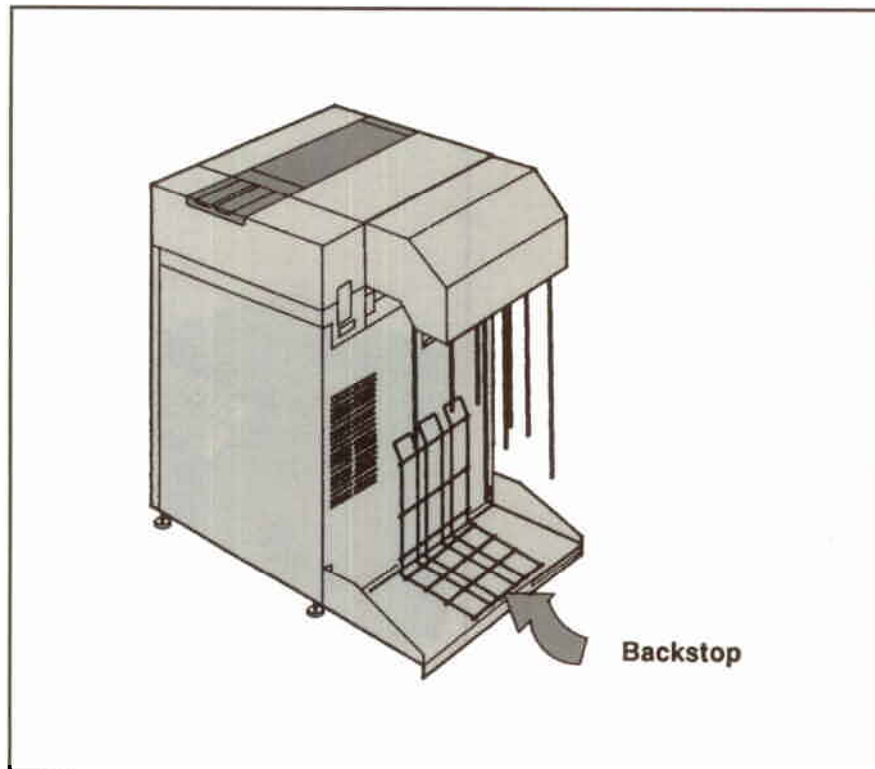


Figure 3-9. Placing the Backstop on the Paper Tray

8. Set the paper basket and forms break on the backstop.

Put the paper basket on top of the backstop with the open end facing the back panel. Place the forms break in the center of the basket (Figure 3-10). Make sure all 8 chains hang freely inside the basket.

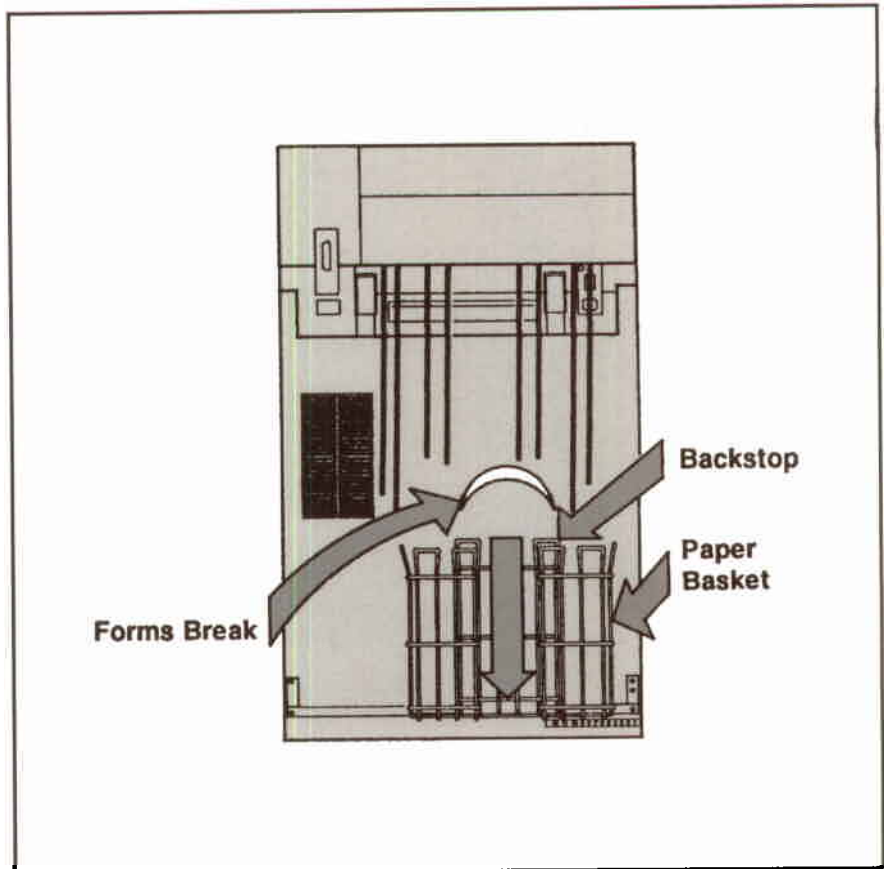


Figure 3-10. Placing Basket and Forms Break over Backstop

9. Installation is finished.

Proceed to Chapter 4, "Getting Started," for information on preparing the printer for operation.

PREPARING THE PRINTER FOR OPERATION

This chapter will help you begin using your HP2563C/HP2564C printer. It explains how to load ribbon cartridges and paper, to adjust forms position and length, and set the Top of Form position.

Loading a Ribbon Cartridge

Note



Follow these directions to install a ribbon cartridge. No tools are required. At this point, the printer's power can either be "ON" or "OFF."

Hewlett-Packard does not recommend the use of re-inked ribbon cartridges. If a re-inked cartridge causes a printer failure, Hewlett-Packard will handle this problem on a per-incident basis and a "time and materials" billing may result.

1. Open the platen.

Push the platen lever away from you to open the platen (Figure 4-1).

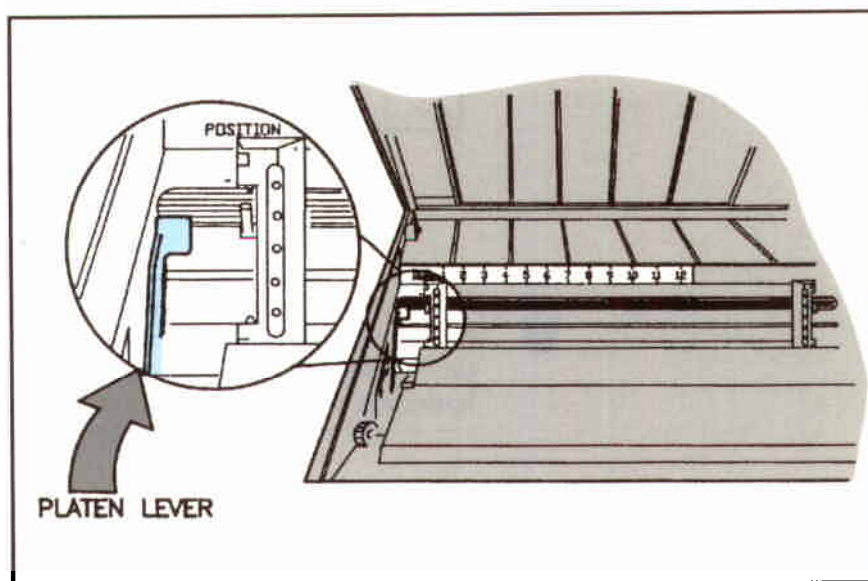


Figure 4-1. Opening the Platen

Note



If the printer is turned "ON," the error number 12 flashes in the display window, indicating that the platen is open. (An interlock switch prevents printing with the platen open.) At this time, disregard the error.

2. Tighten the ribbon.

Turn the knurled knob (on the upper right side of the cartridge) clockwise until the ribbon is snug (Figure 4-2, A).

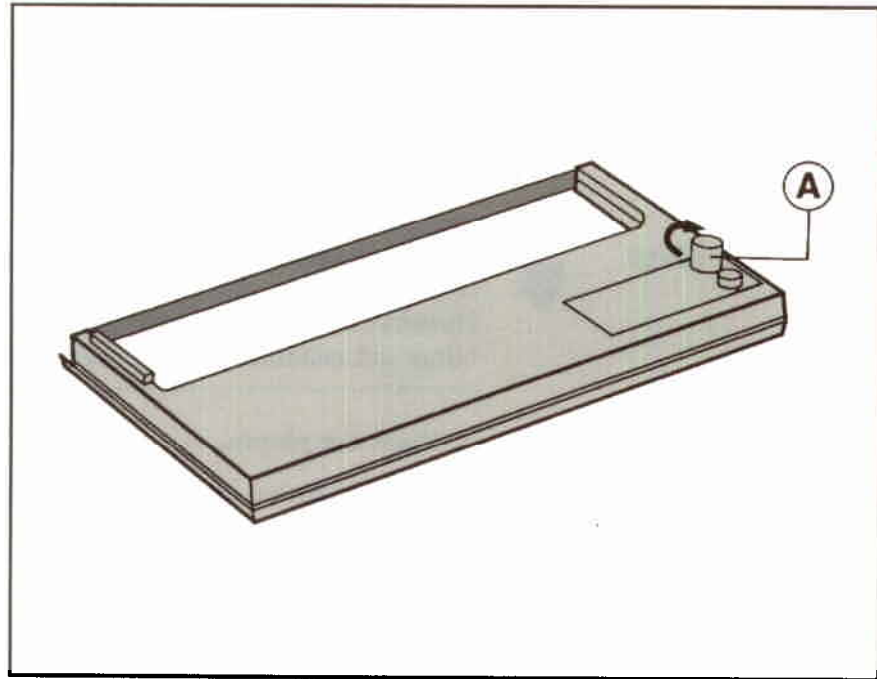


Figure 4-2. Tightening the Ribbon

Note



If the knurled knob is difficult to turn, the ribbon may have been packed tightly in the cartridge during shipping. Lightly tap the end of the cartridge (opposite the knurled knob) on a table-top or other hard, horizontal surface to loosen.

Caution



Be careful if you handle the ribbon shield. Damage can result in print quality problems.

3. Slide the ribbon into place.

Hold the ribbon cartridge in both hands. Tilt the cartridge at an angle so the ribbon is down and the cartridge is up. Insert the ribbon down between the slotted plate and the ribbon shield (between the column indicator and ribbon shield). The ribbon will fit smoothly into the slot if there is no slack (Figure 4-3).

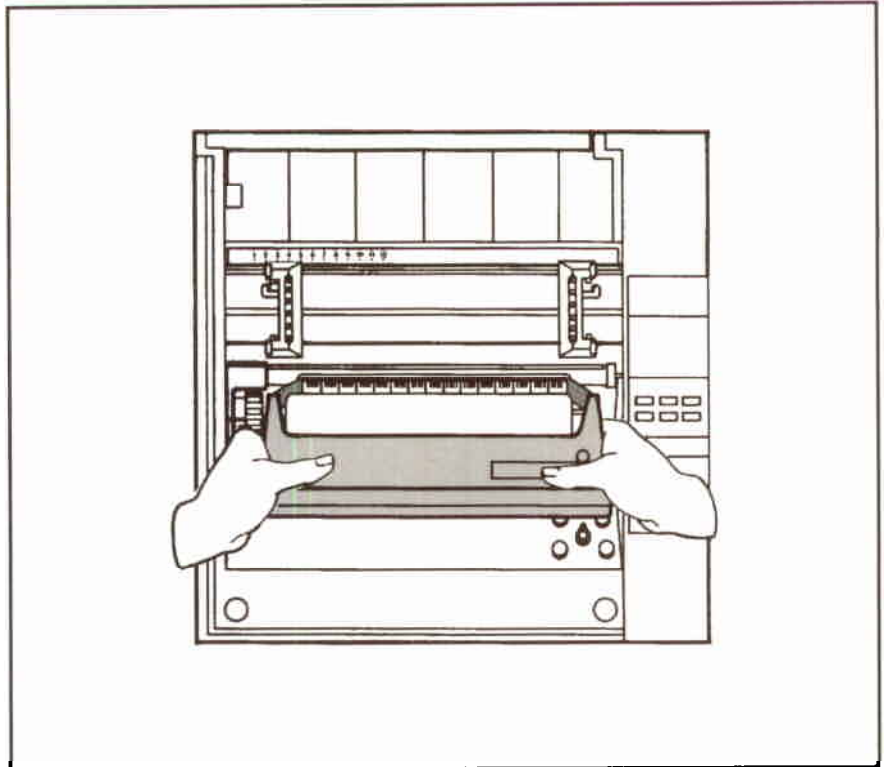


Figure 4-3. Inserting the Ribbon

4. Secure the cartridge.

There is a mounting slot underneath the right side of the ribbon cartridge. Insert the slot on the ribbon cartridge onto the mounting lug on the printer (Figure 4-4). Push the cartridge down while rotating the knurled knob **clock-wise** until the cartridge is firm against the printer. Turning the knob aligns the drive shaft and tightens the ribbon. **Make sure you tighten the ribbon before the cartridge is firmly in place, otherwise the knurled knob is difficult to turn.**

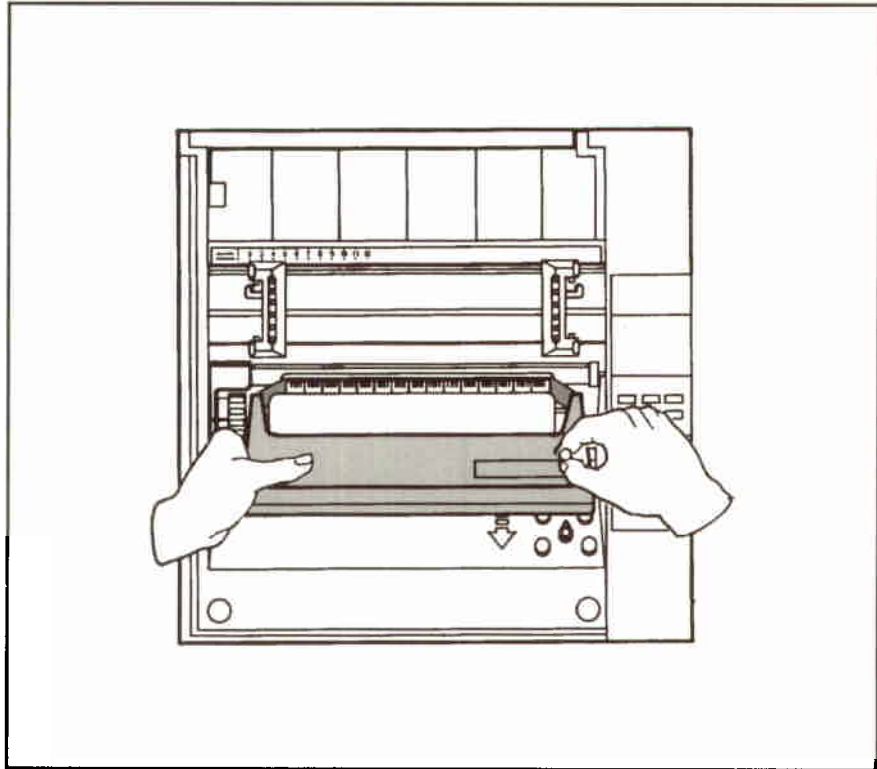


Figure 4-4. Securing the Cartridge

5. Check the ribbon position.

Make certain the cartridge is secured on both ends, and the ribbon is positioned in front of the print mechanism. The ribbon should pass around the far right and left sides of the slotted plate and have no folds in it.

Note



There is a slight offset designed into the mounting. When properly installed, the ribbon cartridge will not be level.

Caution



Be careful not to allow the platen lever to slam closed. This can cause misalignment and possible damage to the forms thickness adjustment mechanism.

6. Close the platen.

Pull the lever toward you.

Ribbon Cartridge Removal

To remove a ribbon cartridge, reverse the installation procedure:

1. Open the platen.

Push the platen lever away from you.

2. Lift the cartridge.

Lift the body of the ribbon cartridge away from the drive shaft and mounting slot in the metal base.

3. Slide out the ribbon.

Maintain tension on the ribbon and remove the ribbon from the print mechanism. Push the ribbon slightly forward and lift it up out of the printer.

4. Clean the housing.

Clean any paper, dust or residue from the area under the ribbon cartridge. Proper cleaning results in optimum print quality and ensures a longer life for your printer.

5. Load a new ribbon.

Refer to page 4-1 for loading a ribbon cartridge.

Paper Loading and Adjustment

These instructions will help you load, adjust, and position your paper correctly.

1. Operator Information Label.

An Operator Information Label is located on the inside of the printer for easy reference to error codes, configuration modes, setting forms position and Top of Form, and other printer functions (Figure 4-5).

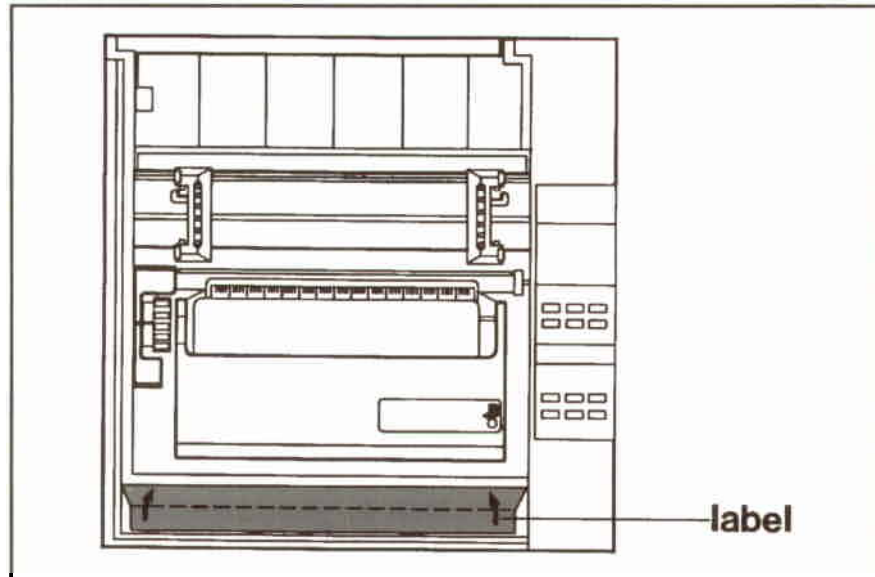


Figure 4-5. Operator Information Label

2. Turn the printer "ON."

On the back panel of the printer, flip the power switch to the "ON" (1) position. The printer must be "ON" to perform set-up functions.

3. Follow the instructions.

If you are changing forms for the first time or loading paper for the first time, follow the proceeding instructions. If you already have paper loaded in the printer, skip to "Adjusting Forms Position" on page 4-11.

Caution



Do not pull paper down through the platen gap if the platen is closed. Damage to the ribbon shield may result in print quality problems.

4. Remove paper from the printer.

When you remove paper from the printer, tear off the form on the perforated line below the paper loading slot and press the **FORM FEED** key to eject the remaining sheets (Figure 4-6).

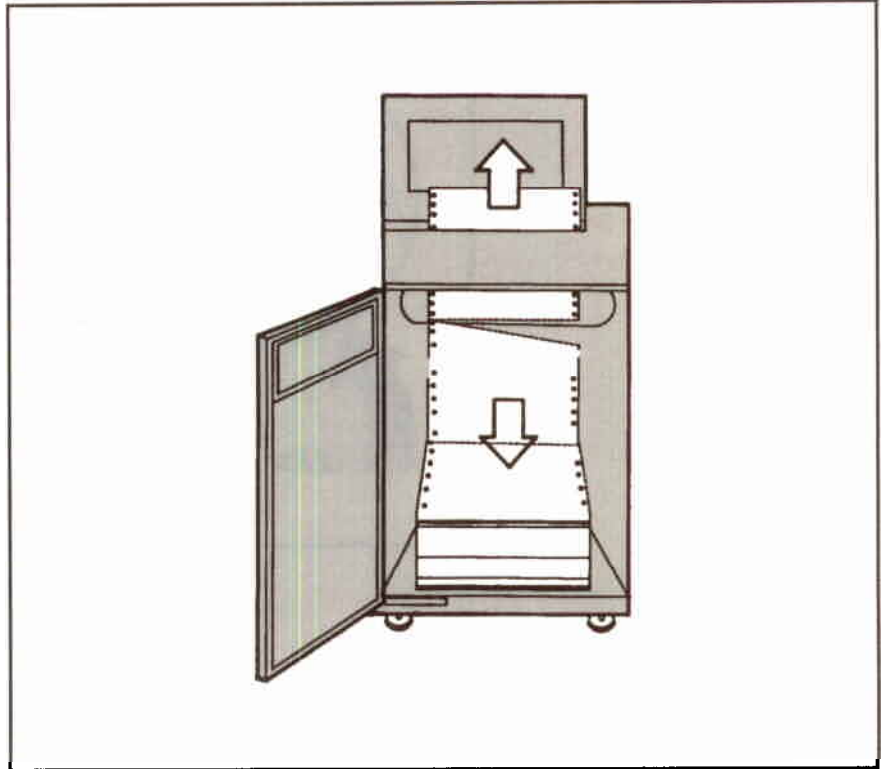


Figure 4-6. Removing Paper from the Printer

5. Remove paper from the box.

For best performance, remove the paper from its box and place it on the floor of the printer cabinet. Position it approximately 1 inch from the front of the cabinet and directly under the tractors. Do not run paper from a box placed outside the printer cabinet.

Note



If you leave the paper in the box, make sure it does not drag on the edges of the box. Pull the sides of the box away from the stack to let the paper move freely through the printer. (Paper jams can occur because the sides of the box are too close to the paper stack.)

6. Open the platen.

Raise the top access cover and open the platen (push the lever away from you, Figure 4-7).

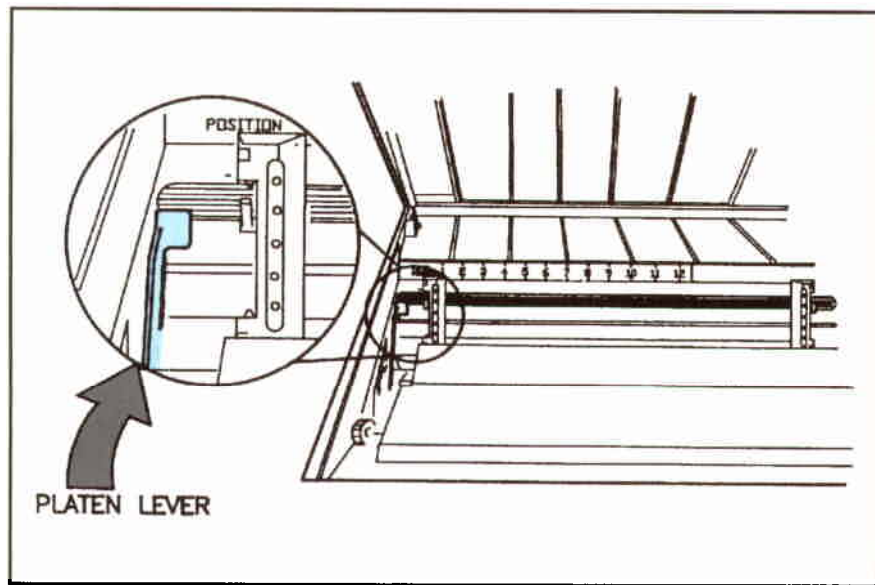


Figure 4-7. Opening the Platen

Note



The error number 12 flashes in the display window on the control panel indicating that the platen is open.

7. Open both tractors.

Open both tractors (Figure 4-8). If a different form or horizontal position is required, unlock the tractor brakes so the tractors can be adjusted to the different width.

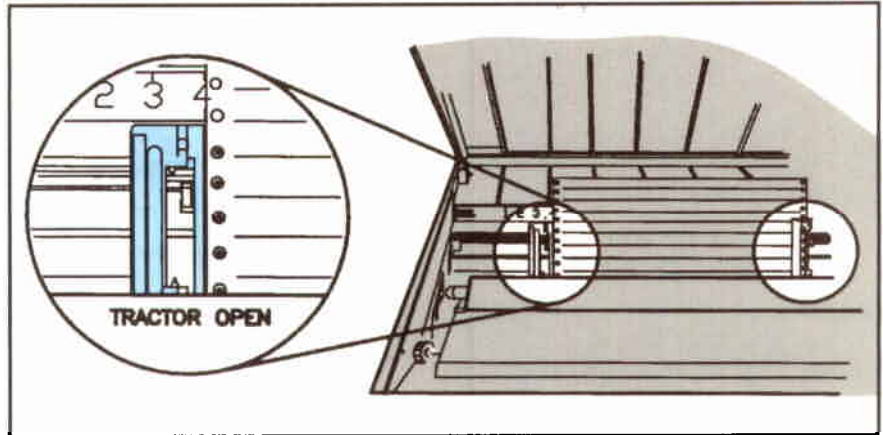


Figure 4-8. Opening Tractors

8. Insert the paper into the printer.

Route the paper up through the slot in the underside of the printer (Figure 4-11). When the paper becomes visible above the print mechanism, pull it up to the tractors.

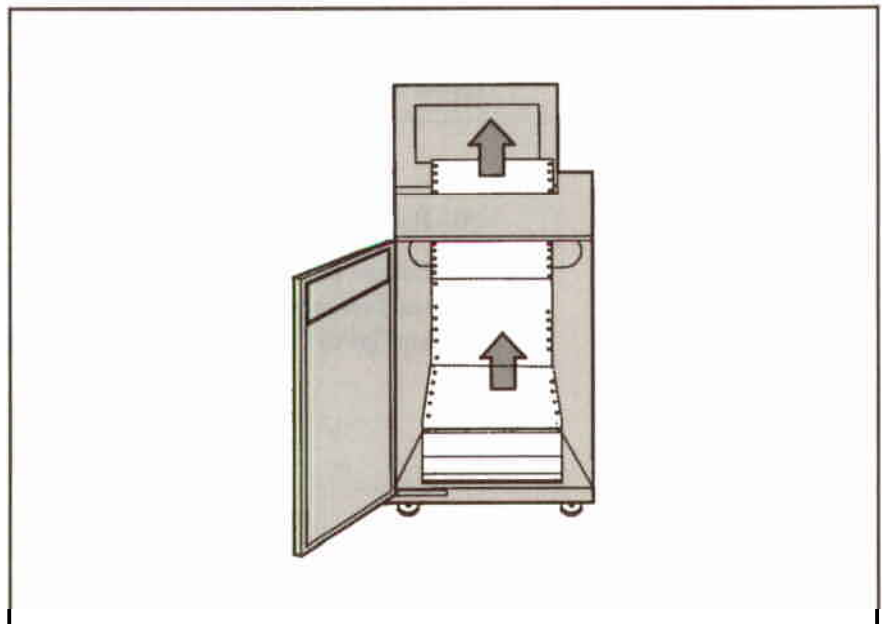


Figure 4-9. Loading Paper Into the Printer

9. Match paper to tractors and close the tractors.

Make sure the paper is straight and not skewed to either side. Match the paper holes to the tractor lugs and close the tractors (Figure 4-10).

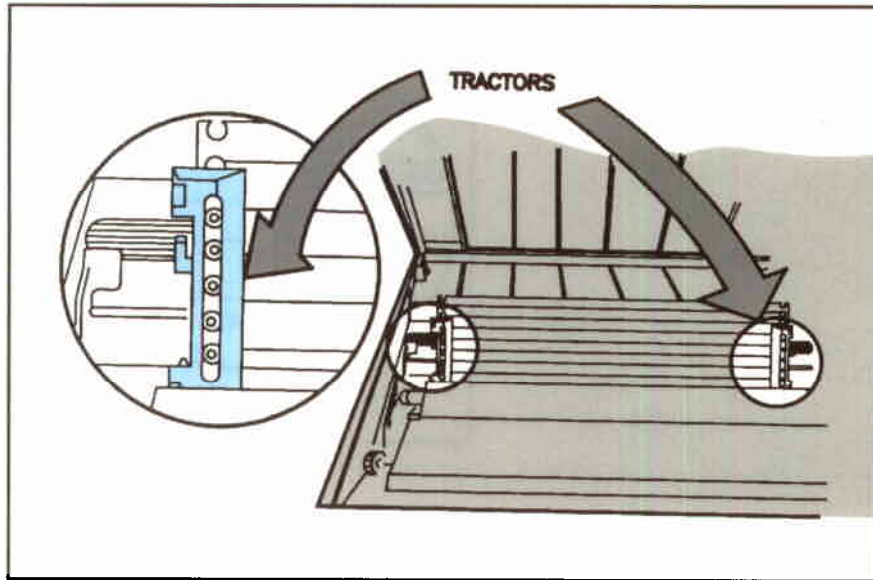


Figure 4-10. Matching Paper to Tractors

Caution



Be careful not to allow the platen lever to slam closed (ease the lever toward you). This can cause misalignment and possible damage to the forms thickness adjustment mechanism.

10. Proceed to adjusting forms position.

Follow the instructions on page 4-11 to adjust the forms position. If the forms position is already set from a previous job, close the platen and go to "Setting Top of Form" on page 4-21.

Adjusting Forms Position

The column indicator is a guide to position your paper for lateral printing. If you change forms or want to start printing at a different location, use the column indicator as a reference to correctly position your paper. The printer starts printing in column "0."

1. Set the left margin.

Move the paper left or right, sliding both tractors simultaneously, until the left tractor corresponds to where you want your left margin (Figure 4-11). (The tractors may be hard to move as they fit tightly against the bar.)

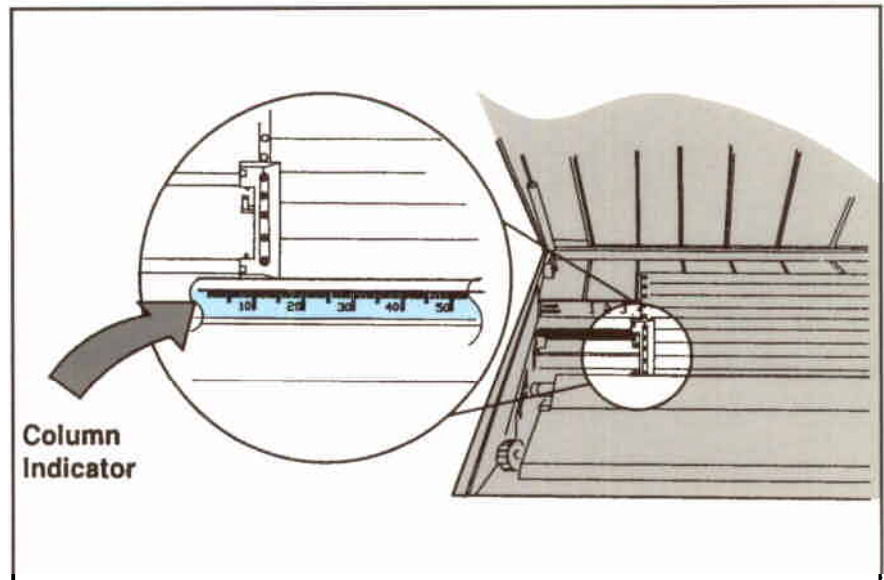


Figure 4-11. Setting the Left Margin



The left margin should not be set farther than 10 on the column indicator. Otherwise, the printer will not detect the paper and display a paper-out error (flashing 11 in the display window).

2. Lock the left tractor.

Push the left tractor brake all the way up to lock the tractor in place (Figure 4-12). DO NOT lock the right tractor yet.

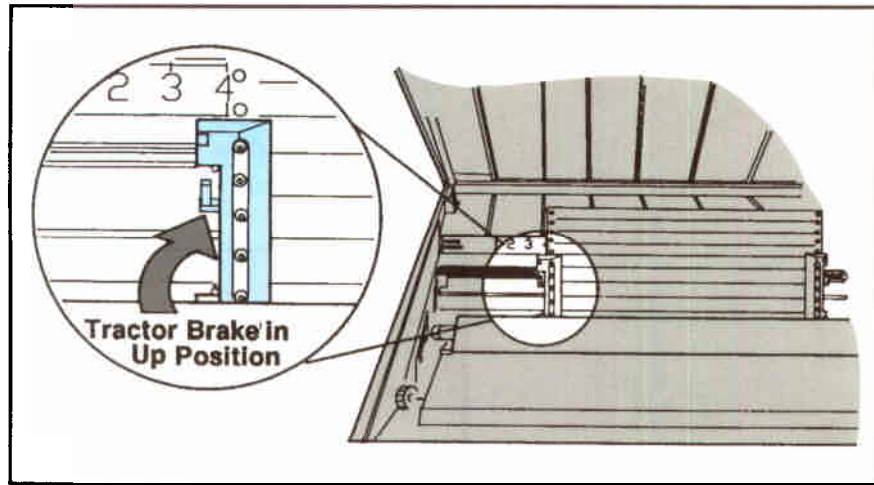


Figure 4-12. Locking the Tractor

3. Adjust paper tension and lock the right tractor.

Adjust the paper tension left to right by moving the right tractor until the paper is just taut. Lock the right tractor the same way as the left tractor (refer to Figure 4-12).

Note



It is very important to set the lateral paper tension correctly. If the paper is too tight, the paper holes tear when moving through the tractors and cause paper jams. If the paper is too loose, ink smears on the page.

Caution



Be careful not to let the platen lever slam closed. This can cause misalignment and possible damage to the forms thickness adjustment mechanism.

4. Close the platen.

Ease the platen lever toward you. Proceed to “Adjusting Forms Thickness” on page 4-13.

Note



If you want to see how far left on the page your text will print, press the **TEST** key and then press the **PRINT 1 LINE** key. After the line prints, **LINE FEED** to advance the paper a few lines to see the pattern.

Adjusting Forms Thickness

The forms thickness adjustment knob (Figure 4-13) allows the printer to accommodate various thicknesses of paper, such as when changing from single to multi-part forms, or when using different weights of paper. It also helps obtain the best possible print quality.

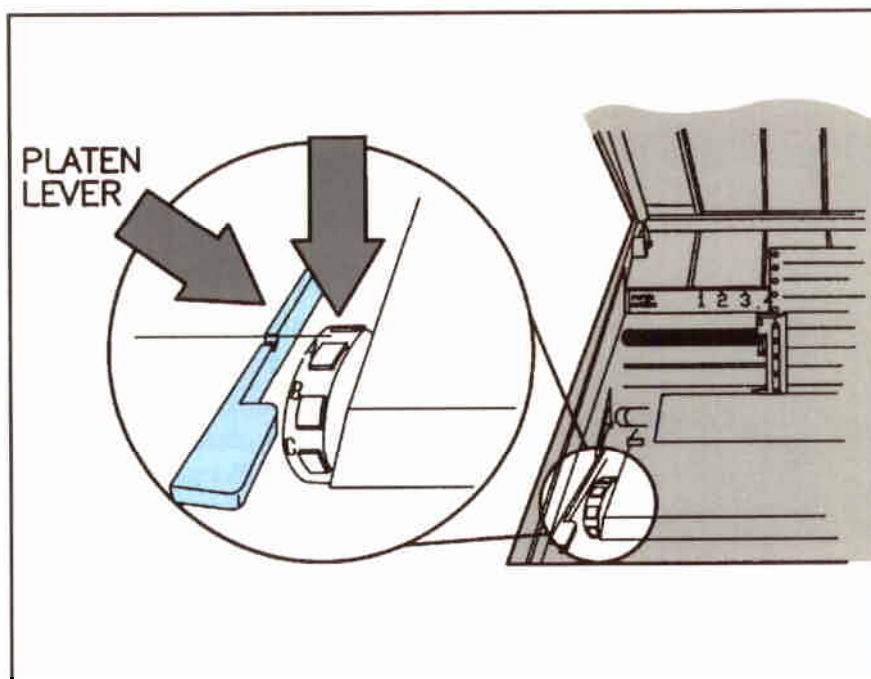


Figure 4-13. Forms Thickness Adjustment Knob

The letters on the forms thickness adjustment knob do not directly correspond to the number of parts in your form. To correctly set forms thickness for best print quality, turn the knob to a recommended starting position, and make your adjustments from that point.

For a single-part form, turn the knob to "B." For a 6-part form, turn the knob to "G." Remember that this is only a rough estimate. Fine adjust your forms thickness using either sub-test 15 or sub-test 8.

Note



Some printers do not have sub-test 15. If yours does not, use sub-test 8 (page 4-15).

To run **sub-test 15**:

1. Press the **TEST** key.

A decimal point appears in the display window on the control panel.

2. Find **sub-test 15**.

Use the **FINE ADJ.** keys to find sub-test 15.

3. Press **ENTER**

The printer begins to print five vertical lines.

4. Check the **print quality**.

Use the **FORM FEED** key to eject the form. Examine the vertical lines. They should be straight. If they are somewhat jagged, with the individual dots offset to the left and right, this is called "dot slalom." It signifies that the print gap is too large (the higher the letter on the knob, the wider the print gap). To decrease the gap, turn the forms thickness adjustment knob one position towards "A." If the ink is smudging on the paper, the print gap is too small. Increase the setting by turning the knob one position toward "J."

5. Adjust to obtain **best print quality**.

Continue running sub-test 15 and adjusting the setting (move one position at a time and then run the sub-test again) until the vertical lines are straight and the best print quality is obtained. Proceed to page 4-16 to set forms length.

Note



When you have determined the best print quality for your form, record the position of the knob as a reference for that particular form.

Note



Paper that has very defined perforation lines may produce small amounts of ink smear as the perforation passes the print bar area. Check your paper for this problem before purchase.

Run **sub-test 8** if the printer does not have sub-test 15.

1. Press the **TEST** key.

A decimal point appears in the display window on the control panel.

2. Find sub-test 8.

Use the **FINE ADJ.** keys to find sub-test 8.

3. Press **ENTER**

The printer begins to print the character set for your printer.

4. Check the print quality.

Use the **FORM FEED** key to eject the form. Examine the vertical characters on your print-out (especially the I's, T's, L's, and 1's). The lines should be straight. If the lines are somewhat jagged, with the individual dots offset to the left and right, this is called "dot slalom." It signifies that the print gap is too large (the higher the letter on the knob, the wider the print gap). To decrease the gap, turn the forms thickness adjustment knob one position towards "A." If the ink is smudging on the paper, the print gap is too small. Increase the setting by turning the knob one position toward "J."

5. Adjust to obtain best print quality.

Continue running sub-test 8 and adjusting the setting (move one position at a time and then run the sub-test again) until the vertical lines are straight and the best print quality is obtained. Proceed to page 4-16 to set forms length.

Note



When you have determined the best print quality for your form, record the position of the knob as a reference for that particular form.

Note



Paper that has very defined perforation lines may produce small amounts of ink smear as the perforation passes the print bar area. Check your paper for this problem before purchase.

Setting Forms Length

Forms length is the amount of text lines your printer can print per page. It can be set two ways: $\frac{1}{2}$ inch increments or text lines-per-page. Both methods are explained below. If you are setting forms length for the first time, or changing forms length to a new paper size, follow these instructions.

Note



If you do not need to set the forms length, continue to the next section, "Setting Top of Form," on page 4-21.

Figure 4-14 defines areas on the form you need to consider when setting forms length.

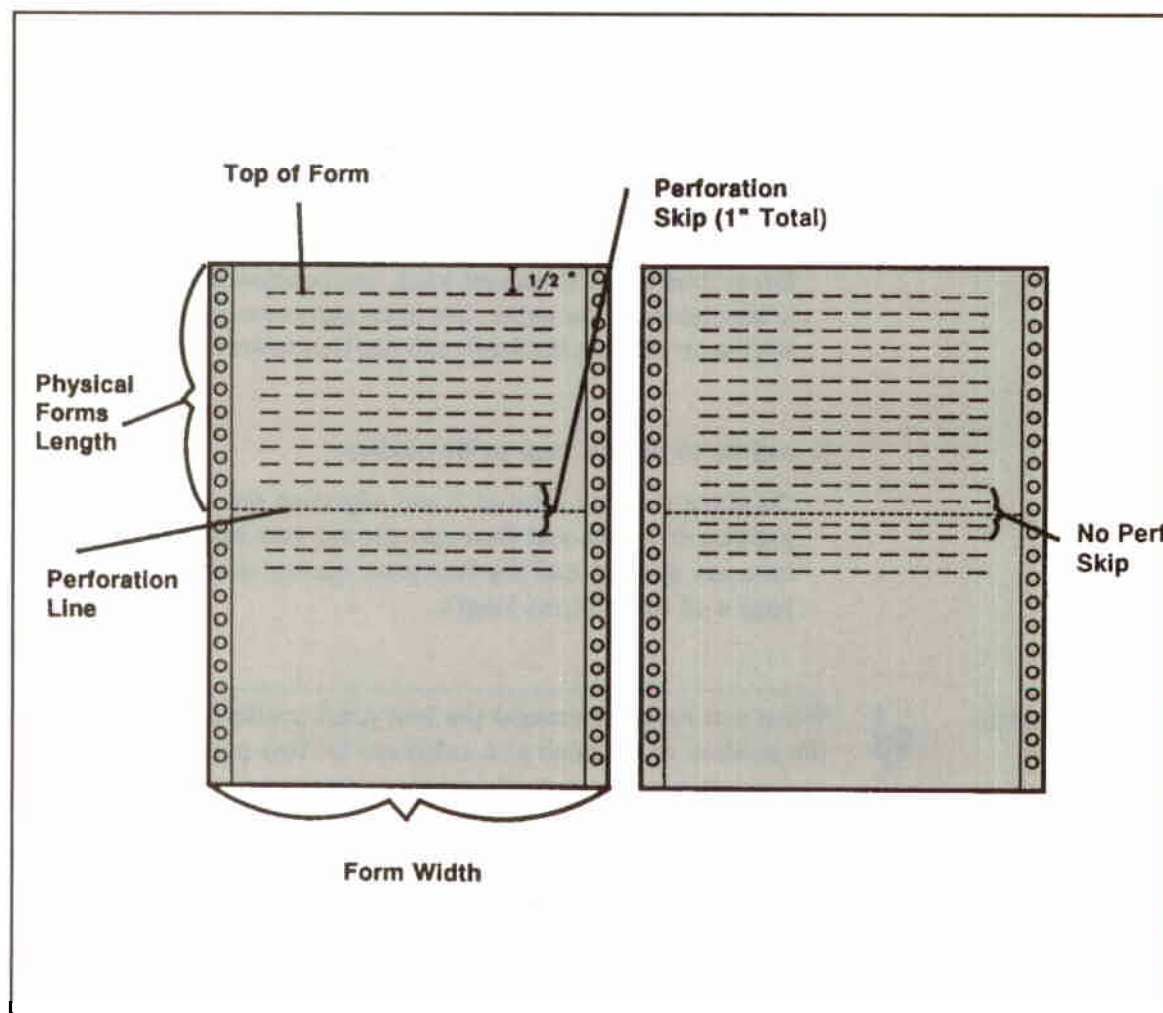


Figure 4-14. Parts of the Form

Adjusting Physical Forms Length in $\frac{1}{2}$ Inch Increments

The forms length can be set in $\frac{1}{2}$ inch increments from 2 to 16 inches. If you want to set forms length in increments other than $\frac{1}{2}$ inch, turn to page 4-18 to adjust forms length in physical text lines-per-page.

Use the keys on the control panel to set the forms length:

1. Enter the configuration mode.

Press and hold down the **CONFIG.** key. At the same time, press either **FINE ADJ.** key to move to function 7 (the decimal points indicate the CONFIGURATION mode). Release the **CONFIG.** key. A "1" or a "0" lights up in the display window. You want setting "0." Press either **FINE ADJ.** key to move to "0" (if "0" is already displayed, press **ENTER**).

2. Press **ENTER**

This programs the printer to set forms length in $\frac{1}{2}$ inch increments.

3. Press **PAGE L. ADJ.**

The current page length setting is displayed in inches. A decimal point allows the number to be a fraction. For example, a setting of 8.5 is actually $8\frac{1}{2}$ inches. A setting of 11.0 is 11 inches.

Note



If you do not want to change the page length, press the **PAGE L. ADJ.** key a second time to return to the STATUS mode, or press **ON LINE** to return the printer to the host.

4. Change the page length setting.

Use the **FINE ADJ.** keys to move to the desired page length.

5. Press **ENTER**

The printer returns to the STATUS mode (a "0" appears in the display window) indicating that the desired page length is entered.

6. Set Top of Form.

Proceed to the section, "Setting Top of Form," on page 4-21.

Adjusting Forms Length in Physical Text Lines-Per-Page

The forms length can be set in number of printable text lines-per-page. The printer can be set at 6 LPI (lines-per-inch), to print 12 to 96 lines of physical text per page, or 8 LPI, to print 16 to 128 lines of physical text per page. It can also be set to operate with perforation skip "ON" or "OFF." To adjust forms length in physical text lines-per-page, you must set perforation skip, LPI, and form length in this order.

Set Perforation Skip

Perf (perforation) skip provides a 1 inch vertical margin that, when properly positioned via the Top of Form setting, prevents printing on the perforated line.

Example:

When printing an 11 inch form at 6 LPI with perf skip "OFF," 66 lines will be printed with no margin allowed for the perforation. When perf skip is "ON," the text length is limited to 60 lines; allowing for a 1 inch vertical margin. If Top of Form is set to begin printing $\frac{1}{2}$ inch below the perf, the next perf will be centered within the 1 inch margin. At 8 LPI, the maximum text length would be reduced from 88 to 80 lines (refer to Figure 4-14).

Turn perf skip "ON."

The perf skip default setting for your printer is "OFF." To turn perf skip "ON," follow these instructions:

1. Enter configuration function 60

Press and hold down the **CONFIG.** key. At the same time, press either **FINE ADJ.** key to move to function 60 (the decimal points indicate the CONFIGURATION mode). Release the **CONFIG.** key. A "0" lights up in the display window.

2. Change to "1."

Use either **FINE ADJ.** key to move to "1."

3. Press **ENTER**

This turns perf skip "ON."

Turn perf skip "OFF."

Follow steps 1, 2, and 3 above, but enter "0" instead of "1."

With perf skip “OFF,” the printer prints whatever number you enter for physical text lines-per-page. If the number exceeds the maximum physical lines the printer can print per page, it will print in the perf skip region.

For more information on perf skip, refer to the section on “Perforation Skip Mode” in the *HP256X Printer Family Technical Reference Manual*, 02564-90905.

Note



Perf skip mode is only applicable when using line feed instruction applications (line count). If the application uses calls to Vertical Forms Control (VFC) channels, the VFC definition of vertical margin is used and the state of the perf skip mode has no effect.

Set LPI (lines-per-inch)

Once you have determined the perf skip mode, the next step is to set LPI.

1. Press **L.P.I. ADJ.**

The present LPI setting shows up in the display window (the decimal points indicate the CONFIGURATION mode).

2. Change the LPI setting.

If you want to change the value, use either **FINE ADJ.** key to move to the desired LPI setting (both keys toggle between 6 and 8). If you do not want to change the value, press **L.P.I. ADJ.** again to return to the STATUS mode (a “0” appears in the display window) and proceed to set the forms length.

3. Press **ENTER**

The printer returns to the STATUS mode (a “0” appears in the display window) indicating that the desired setting is entered.

Set Forms Length

After determining the LPI setting, use the keys on the control panel to set the forms length:

Note



If you set forms length in programmable VFC, make sure the same setting is entered in the front panel. Otherwise, the printer will continue to print when paper-out occurs.

1. Enter the configuration mode.

Press and hold down the **CONFIG.** key. At the same time, press either **FINE ADJ.** key to move to function 7 (the decimal points indicate the CONFIGURATION mode). Release the **CONFIG.** key. A “1” or a “0” lights up in the display window. You want setting “1.” Press either **FINE ADJ.** key to move to “1” (if “1” is already displayed, press **ENTER**).

2. Press **ENTER**

This programs the printer to set forms length in text lines-per-page.

3. Press **PAGE L. ADJ.**

The current number of text lines-per-page is displayed.

Note



If you do not want to change the text lines-per-page, press the **PAGE L. ADJ.** key a second time to return to the STATUS mode, or press **ON LINE** to turn control over to the host.

4. Change the setting.

Use either **FINE ADJ.** key to move to the desired number of text lines-per-page.

5. Press **ENTER**

The printer returns to the STATUS mode (a “0” appears in the display window), indicating that the desired page length is entered.

6. Set Top of Form.

Proceed to the section, “Setting Top of Form,” on page 4-21.

Setting Top of Form

The Top of Form (TOF) position is an arbitrary indicator of the first line of print. Once the Top of Form is set, any succeeding **FORM FEED** advances paper one page length until the same position on the next page is reached. This enables you to move swiftly to the first print line on the succeeding page.

Set the Top of Form position by using the keys on the control panel:

1. Press **SET T.O.F.**

Three decimal points on the display illuminate to indicate the SET TOP OF FORM mode.

2. Adjust the paper.

Move the paper using the **LINE FEED** or **FINE ADJ.** keys until the first line you want to print rests on top of the ribbon shield; that is, the top of the ribbon shield corresponds to the bottom of the first line of print desired on the page (Figure 4-15).

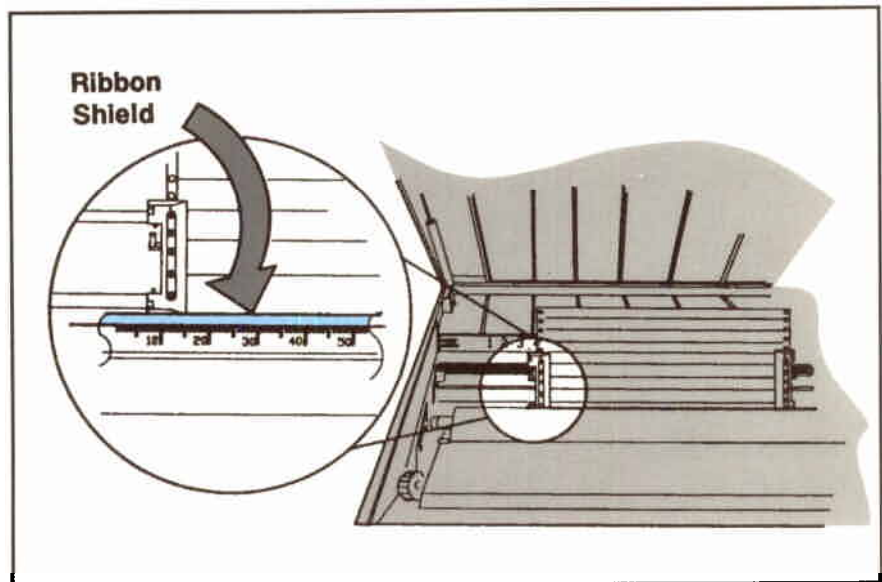


Figure 4-15. Ribbon Shield

Note



The **FINE ADJ.** (down) key allows the printer to retract paper; however, you must open the platen to allow paper to move in the reverse direction. If you do not open the platen, the paper will not move.

Note



The top cover should be closed during form feeds and printing as it is an integral part of the paper path.

3. Press **ENTER**

The paper advances to the next form with the print mechanism aligned exactly at the desired Top of Form. Make sure the paper lies flat as it feeds out of the top of the printer.

Note



The ribbon shield is the Top of Form indicator. However, after the paper advances to the next Top of Form position, the ribbon shield will not line up with the Top of Form. The print mechanism hammers, located below the top of the ribbon shield, will be ready to print at the correct position.

If the actual length of the form is not equal to the forms length stored in memory, the printer will not advance paper to the correct Top of Form. To change the forms length see “Setting Forms Length” on page 4-16.

USING THE PAPER STACKING AID

Setting Up the Paper Stacking Aid

Once your paper is loaded correctly in the printer, follow these instructions to prepare your stacking aid to stack paper.

1. Position the input paper stack.

Note the position of the paper against the paper position alignment label inside the printer, just behind the left tractor (Figure 5-1, A). Open the printer stand door and position the input paper stack so that the left edge of the stack corresponds to the same number. Then, position the stack approximately 1 inch from the front of the stand and directly under the printer (Figure 5-1, B).

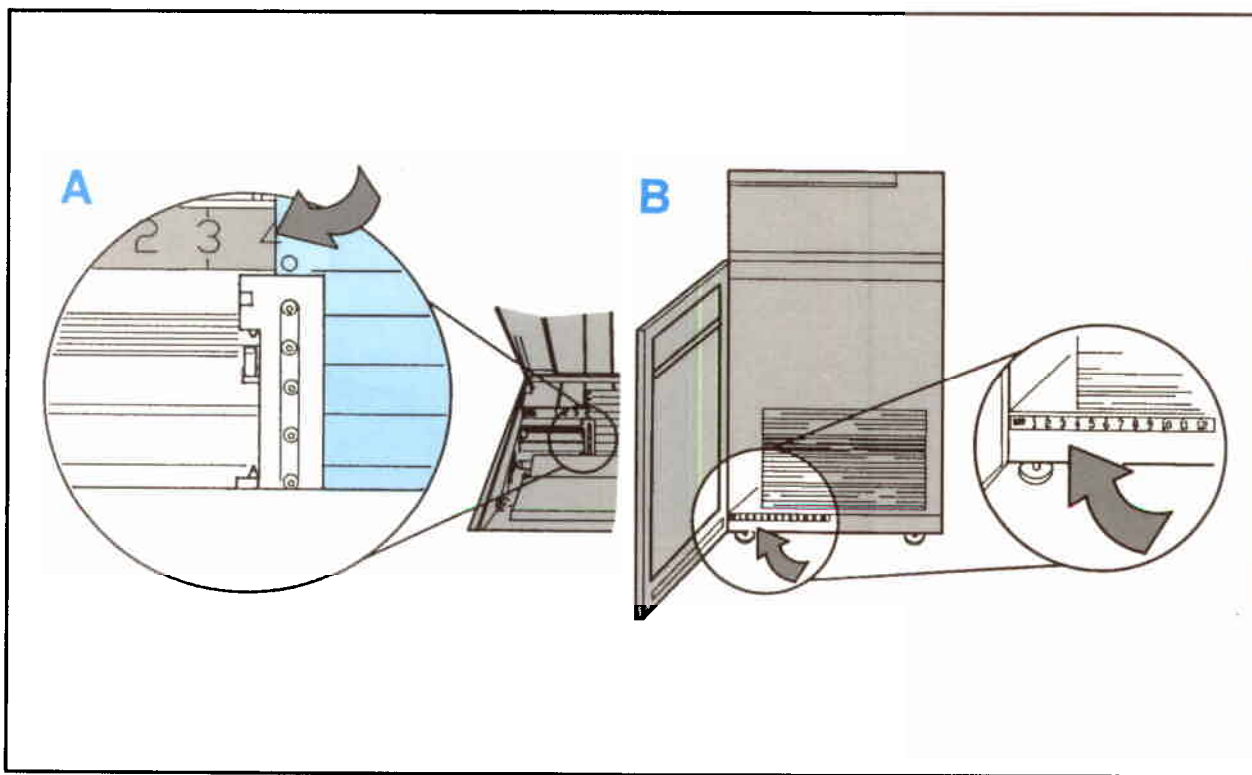


Figure 5-1. Positioning the Input Paper Stack

2. Shut the doors.

Close the printer stand door and the top cover.

3. Remove the paper basket.

Lift the paper basket off the paper tray and set it aside so you can center the backstop.

4. Advance paper under the sound shroud.

There should already be paper hanging from the printer from the forms thickness and top of form adjustments. If the paper is not yet visible, advance it just under the sound shroud. If it is already visible, do not advance it.

5. Position the backstop on the paper tray.

If you are using 11 inch paper, position the backstop 1 inch from the back of the printer. If you are printing with 12 inch paper, place the backstop directly against the back of the printer (Figure 5-2).

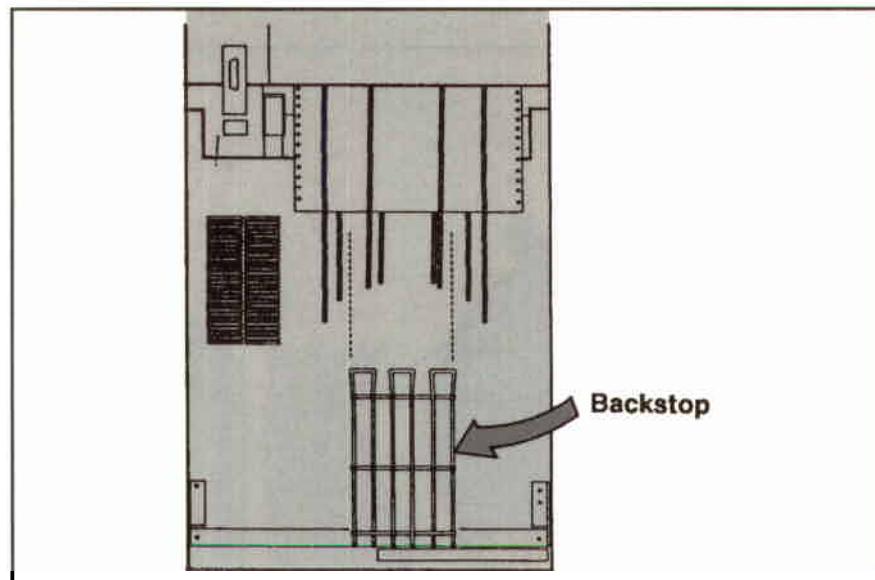


Figure 5-2. Centering the Backstop

6. Adjust the paper basket.

Remove the forms break and turn the basket upside down so the bottom is facing up. The two sides of the basket slide back and forth, so push in or pull out to adjust the width (Figure 5-3).

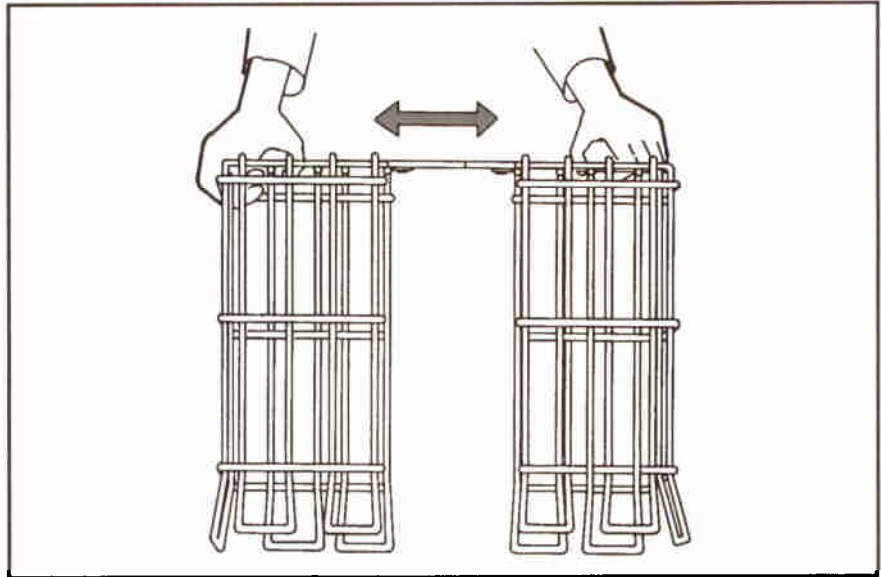


Figure 5-3. Adjusting the Paper Basket

Adjust the paper basket for these form widths:

Table 5-1. Paper Basket Settings

Forms Width	Basket Setting
14 $\frac{7}{8}$ inches	open all the way
9 $\frac{1}{2}$ inches	closed all the way
All others	1 in. between paper and basket on sides

7. Center the paper basket.

Center the paper basket over the backstop and under the paper (Figure 5-4).

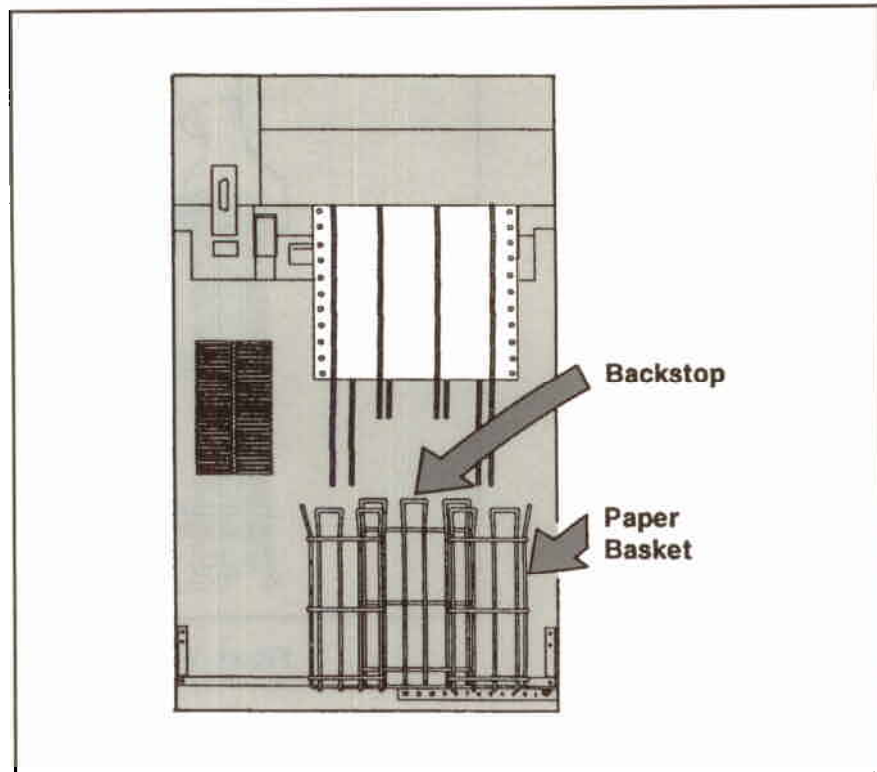


Figure 5-4. Centering the Basket Over the Backstop

8. Center the forms break in the basket.

Use this table to determine placement of the forms break in the paper basket.

Table 5-2. Forms Break Placement

Forms Width	Forms Break Placement
12 - 14 $\frac{7}{8}$ inches	open ends face front & back
9 $\frac{1}{2}$ - 11 inches	open ends face left & right
< 9 $\frac{1}{2}$ inches	no forms break
multi-part	no forms break
> 40 pounds	no forms break

< = less than > = greater than

Figure 5-5 shows the forms break placement for $9\frac{1}{2}$ inch and $14\frac{7}{8}$ inch paper.

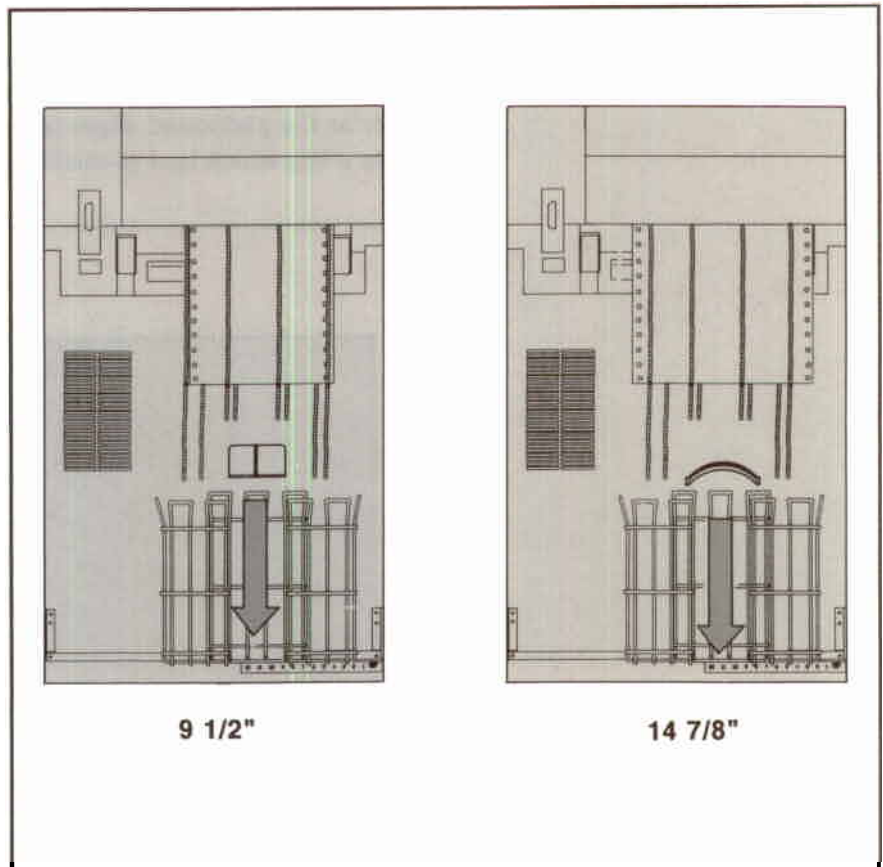


Figure 5-5. Positioning the Forms Break

9. Advance paper into the paper basket.

Advance a few sheets of paper into the basket by using the **FORM FEED** key or starting your job.

10. Start the stack in the basket.

Make sure the first sheet of paper folds in the basket the same way as it came out of the input box (Figure 5-6). Perforated paper is designed to fold in a certain direction. If you start the paper in the direction the perforated line is meant to fold, the stack will grow evenly. If you start the paper against the fold, the stack will grow faster at the perforated edges than the center of the stack. This may cause u'ing which lead to misfolds.

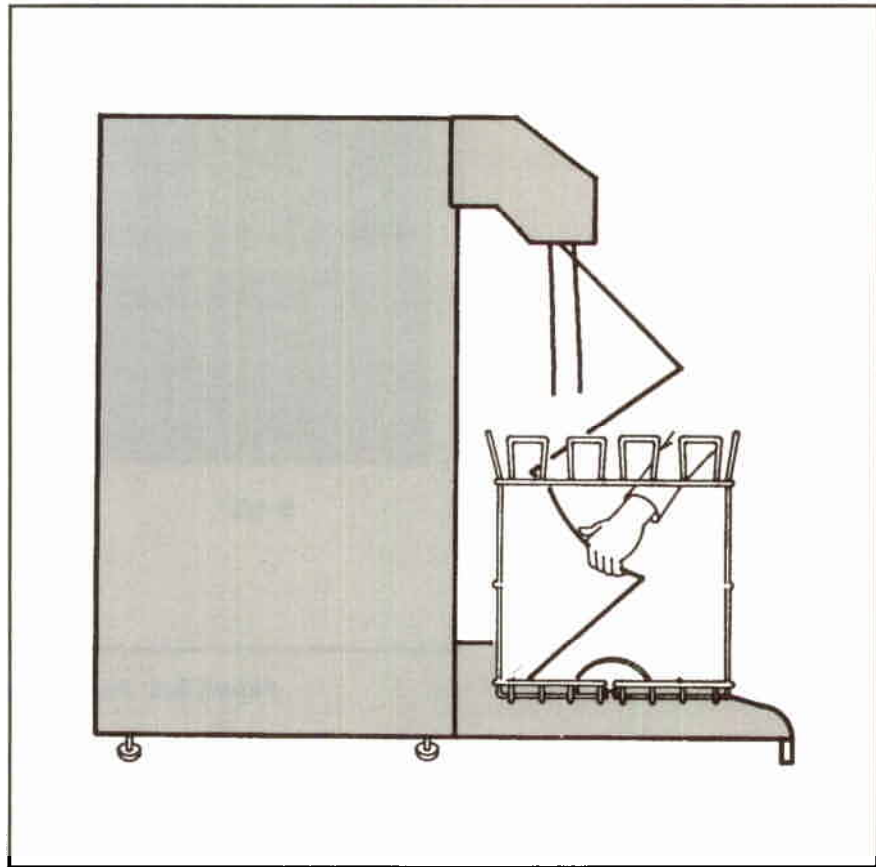


Figure 5-6. Starting the Stack in the Basket

Note



The performance of the stacking aid depends on the stack beginning correctly. It is extremely important that the paper folds into the basket the same way that it was stacked when manufactured.

11. Adjust the paper in the basket.

The paper must butt up against the basket in the rear, and there should be a $\frac{1}{2}$ inch space between the paper and basket in the front. (Figure 5-7, A). On each side of the stack, the minimum distance between the paper and basket should be 1 inch (Figure 5-7, B).

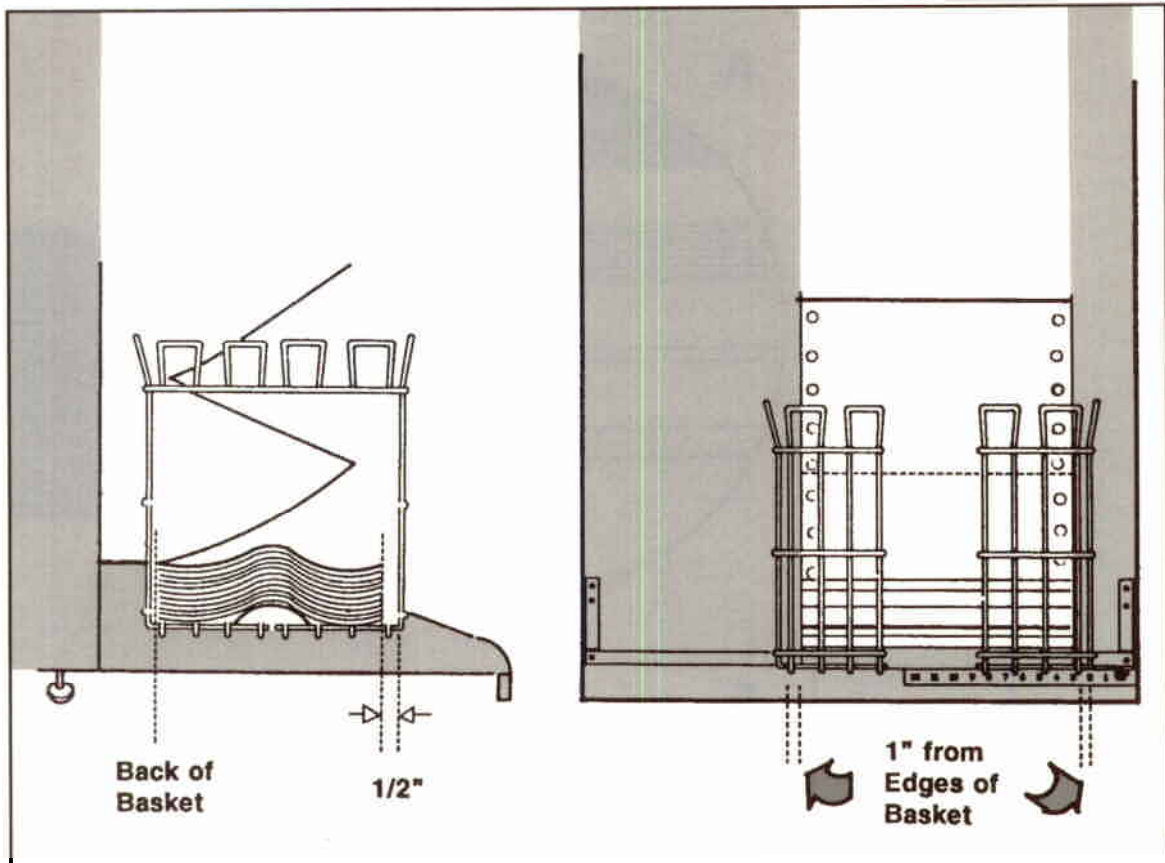


Figure 5-7. Adjusting the Paper in the Basket

Note



If there is too much space between the paper and backstop and the paper and front of the basket, the paper will not fold correctly along the perforated line. The paper uses the backstop and basket to guide it into position.

Note



The position of the forms break in illustration 5-7 is shown for $9\frac{1}{2}$ by 11 inch paper.

12. Position the paper stack.

Align the **right edge of the paper stack** to the same alignment number as the paper in the printer (Figure 5-8, A). Move the paper basket to position the right edge of the paper with the desired alignment number on the paper tray (Figure 5-8, B).

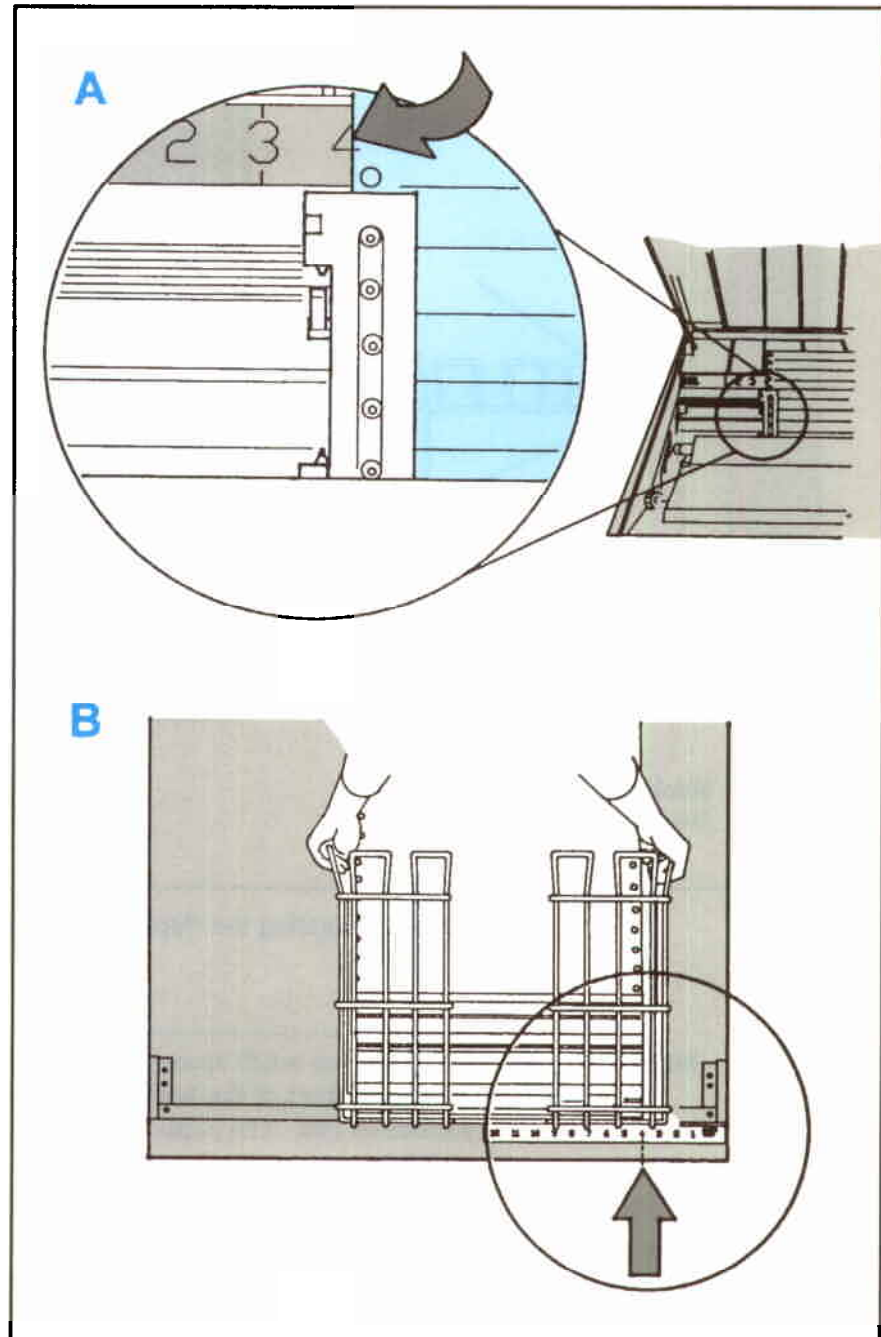


Figure 5-8. Positioning the Paper Stack

13. Watch the paper feed out of the printer.

Put the printer **ON LINE** and start your job. Watch the first few sheets of paper feed out of the printer to make sure they fall smoothly into the basket. All the chains should hang freely.

Note



The performance of the stacking aid depends on the stack beginning correctly. It is extremely important that the paper folds into the basket the same way that it was stacked when manufactured.

14. Inspect the paper tractor holes.

As the paper feeds out, make sure the paper holes are round and even (Figure 5-9, A), not torn or distorted (Figure 5-9, B). (If they have a slight teardrop shape, this is normal.) If you find the holes are excessively distorted, unlock the right tractor and loosen the paper tension (refer to “Adjusting Forms Position” on page 4-11). Re-lock the tractor and begin the job again. Check for the same problem and re-adjust if necessary.

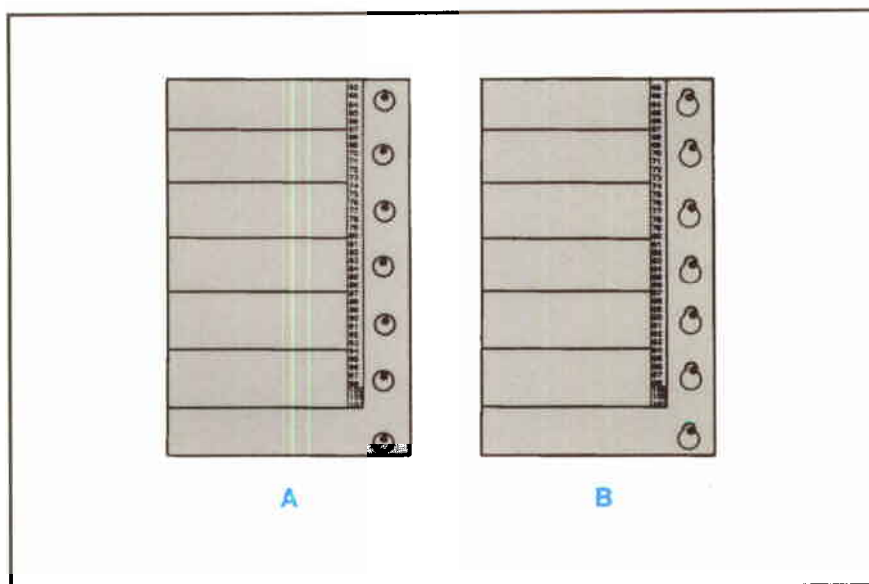


Figure 5-9. Paper Hole Distortion

15. Inspect the print quality on your page.

If ink is smeared on the page, the tractors are too close together. Unlock the right tractor and tighten the paper tension (refer to “Adjusting Forms Position” on page 4-11). Re-lock the tractor and begin the job again. Check for the same problem and re-adjust if necessary.

16. Continue your job.

Now your stacking aid is completely set up to process work. If problems occur, refer to Appendix C, "Troubleshooting Paper Stacking Problems," for help.

17. Compress the stack.

For optimum performance, the only thing you need to do is compress the paper stack (push down on the stack to flatten it) every six inches or so. This removes air between the folds so the stack will grow evenly.

18. Remove your job.

Pick the basket up by the handles to remove your job from the printer.

CONFIGURING PRINTER FEATURES

The HP2563C/HP2564C printer needs to be configured to perform various functions. Follow the procedure below to configure the printer using the buttons on the Operator Control Panel.

Table 6-1 lists the configurable printer functions and their associated numbers. Each function has two or more possible parameter values that can be selected as desired. Some of the functions can be set remotely via escape (ESC) sequences. (See the *HP256X Printer Family Technical Reference Manual, 02564-90905*, for information about remote configuration). Also, use the Operator Information Label inside the printer as a quick reference guide to the CONFIGURATION modes (Figure 4-5).

Setting Configuration Functions

Follow steps 1 - 4 to adjust and set CONFIGURATION modes from the Operator Control Panel.

1. Enter the CONFIGURATION mode.

Make sure the printer is "off-line." Press and hold down the **CONFIG.** key. At the same time, press either **FINE ADJ.** key to move to the desired function number (two decimal points indicate the CONFIGURATION mode).

2. Release the **CONFIG.** key.

The **parameter** for the desired function number shows up in the display window.

Note



If you do not want to change the parameter, press the **CONFIG.** key a second time, or press the **ENTER** key, or press the **ON LINE** key. All these retain the original configuration for that function.

3. Set the parameter.

Use either **FINE ADJ.** key to move to the desired parameter.

Note



Some configuration parameters can only be modified by a Hewlett-Packard Service Representative. In these cases, the **FINE ADJ.** keys have no effect.

4. Press **ENTER**

This sets the new parameter and the printer returns to the STATUS mode.

Table 6-1. Configuration Function Numbers

Function #	Description	Parameter Range	Comments
1	Select primary character set	0-95	See pg. 6-3
2	Select secondary character set	0-95	See pg. 6-3
7	Select page length representation	0,1	See pg. 6-4
20-29*	Configure Interface	00-FF	See pg. 6-5
50	Disconnect Modem	0,1	See pg. 6-4
51	Graphics Speed	0,1	See pg. 6-4
52	Horizontal graphics density	60,70	See pg. 6-4
53	Difficult Forms Mode	0,1	See pg. 6-5
60	Perforation skip	0,1	See pg. 6-5
61	Display functions	0,1	See pg. 6-5
80	Enable/Disable Label Card	0,1	See HP Label Card Manual 26062-90902
81	Printronix P-series Linefeed emulation	0,1	See HP Label Card Manual
85-89	Configure Label Card	00,FF	See HP Label Card Manual

*Functions 20-29 are dependent on which interface is installed (see your Interface manual).

Character Set Selection

To be compatible with both 7-bit and 8-bit hosts, your HP2563C/HP2564C printer has 7-bit and 8-bit character sets. The standard 7-bit sets are ASCII and Roman Extension. The standard 8-bit set is Roman8, combining ASCII plus Roman Extension characters. The printer may contain up to 16 character sets. Your printer contains the sets which were specified in your purchase order. Two character sets (primary and secondary) may be selected at any one time and are chosen either through the CONFIGURATION mode from the Operator Control Panel or remotely via escape sequences.

Primary Character Set: FUNCTION 1

Select the primary character set by accessing function number “1” of the CONFIGURATION mode and selecting the parameter associated with the desired primary character set. The character sets and their associated parameters values are listed on your self-test print out. Figure 6-1 shows an example of the top portion of a self- test printout. The arrows in the figure point out the assigned character set parameter values. Note that the assigned values vary from printer to printer. Check your printer’s self-test for the character set values.

Secondary Character Set: FUNTION 2

Select the secondary character set from the printer's self-test. Access function number "2" of the CONFIGURATION mode and enter the parameter associated with that set (Fig. 6-1).

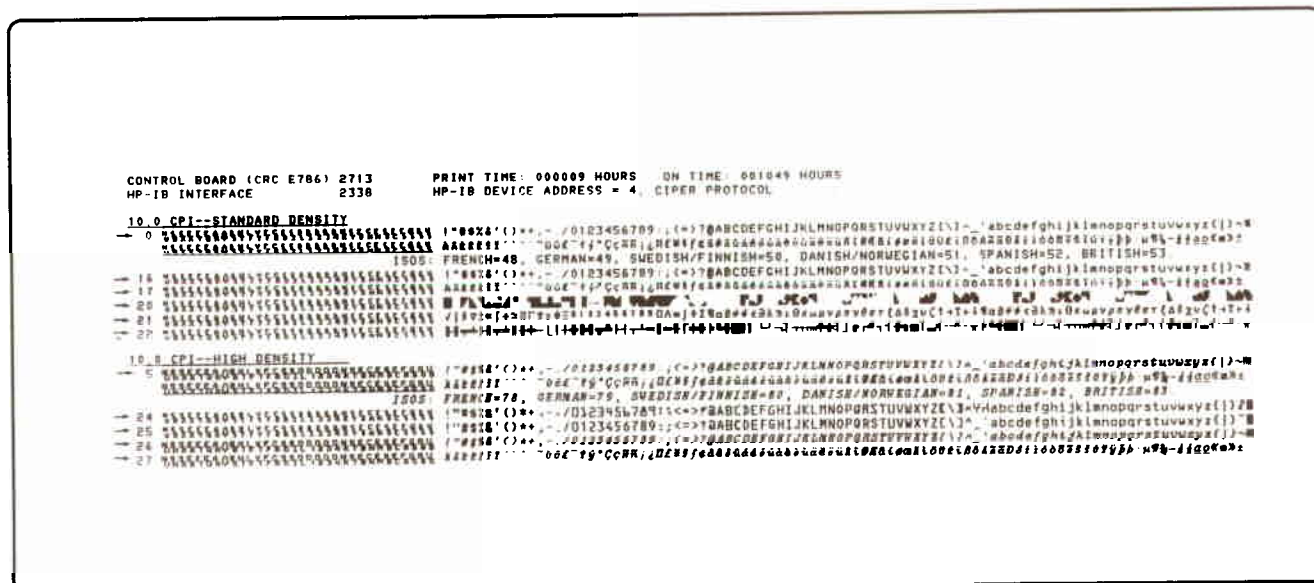


Figure 6-1. Character Set Self-Test Example

Remote Character Set

Remote character sets in your self-test printout may also be selected remotely if performed under program control. Character set selection commands override the Operator Control Panel configuration setting (except under power-on or reset conditions). When taken "off-line," the printer remains in the character set last commanded. See the *HP256X Printer Family Technical Reference Manual, 02564-90905*, for information on remote character set selection.

Standard ASCII SHIFT-IN and SHIFT-OUT codes may be used to select primary and secondary character sets. SHIFT-OUT selects the secondary set and SHIFT-IN returns the printer to the primary set. Any number of character sets may be used within one print line if they are the same pitch. Additionally, bar codes and line draw can be printed on the same line as 10 character-per-inch (cpi) character sets. (Compressed character sets and the double-high/double-wide character sets cannot be printed on the same line with each other or with 10 cpi text).

Select Page Length Representation: FUNCTION 7

Page length can be selected in either lines-per-page or in $\frac{1}{2}$ inch increments. Refer to "Setting Forms Length" on page 4-16 for instructions on how to set the CONFIGURATION mode.

Disconnect Modem: FUNCTION 50

If a serial interface (or Multipoint interface) is installed in the printer and is connected to a modem, it is possible to disconnect the modem from the printer's Operator Control Panel. Setting function 50 to parameter "1" and then pressing **(ENTER)** makes the Data Terminal Ready line go to the "OFF" state for two seconds. If the modem Data Terminal Ready line is connected, this action should disconnect (hang-up) the modem.

Graphics Speed Selection: FUNCTION 51

In normal graphics, the HP2563C/HP2564C printer has two print speeds. The HP2563C prints at 14.5 or 29 inches/minute and the HP2564C prints at 29 or 58 inches/minute. Graphics speed is selected by setting function 51 of the CONFIGURATION mode to parameter "0" for the slower print speed and parameter "1" for the higher print speed. The print speed may NOT be set programmatically. The slower print speed provides higher quality print, and therefore is recommended for applications requiring higher-quality graphics.

Horizontal Graphics Density Selection: FUNCTION 52

Horizontal graphics density (60 or 70 dots per inch) is selected via function 52. There is not a parameter of "1" or "0" for this function. Only 60 or 70 shows up in the display window. Programmatically setting the density overrides the operator control panel setting except under power-on or reset conditions. The default value is 70 dots-per-inch (dpi).

**Difficult Forms Mode:
FUNCTION 53**

Some complex multi-part forms such as statement mailers or invoices may result in a loss of the Top of Form position. If this problem happens, the printer can be placed in a low speed, high torque mode by accessing function 53 of the CONFIGURATION mode and selecting a parameter of "1." Since this will affect throughput, make sure function 53 is set back to "0" when the high torque mode is not required.

**Perforation Skip Mode:
FUNCTION 60**

When perforation skip mode is enabled (ON), an automatic page eject occurs when the perforation skip region is entered. This is to prevent printing too close to the page perforations. You can turn this automatic page eject "ON" by setting Perforation Skip Mode (function 60) to parameter "1" (ON). The default value is "0" (OFF). VFC control is not affected by perforation skip mode. For more information on perforation skip, refer to page 4-18.

**Display Functions
Mode:
FUNCTION 61**

Turn on the display functions mode by setting function 61 to parameter "1" (ON). In the display functions mode, the printer prints representative character symbols for the control code or escape sequence characters instead of actually executing the commands. For example, if the printer encounters the SHIFT-OUT command (to access the secondary font), the command will not be executed. The symbol SO will be printed instead. Two exceptions to this are the carriage return command and the escape sequence to turn display function mode "OFF" (ESC Z). The carriage return control character will cause a CR symbol to be printed and an actual carriage return and line feed to be performed. Function 80 must be set to parameter "0" if the display function mode is "ON." The default parameter for display functions mode is "0" (OFF).

Vertical Line Spacing

Vertical line spacing (6 or 8 lines per inch) is selected via the L.P.I. ADJ. key on the Operator Control Panel or by program control or escape sequences. Programmatically setting the line spacing overrides the Operator Control Panel setting except under power-on or reset conditions. Refer to page 4-19 for more information on setting LPI.

**Interface
Configuration**

All interface functions are programmed from the Operator Control Panel, however, your Hewlett-Packard Service Representative usually enters these numbers. **When the function numbers are entered, make sure you write them down in the I/O Configuration parameter column on the Operator Information Label (see Figure 4-5).** There may be instances when these numbers need to be re-entered. Each interface has its own set of configuration parameters which are set by accessing functions 20 through 29 of the CONFIGURATION mode. If you need additional information, refer to the Interface manual shipped with your printer for configuration or cabling information.

Note



If your printer is equipped with an HP-IB interface, see “HP-IB Selection” at the bottom of this page for address selection. If it is equipped with another interface, see the Interface manual shipped with your printer.

All interface functions (20 - 29) and their parameters must be entered. If you need to change the configuration or re-enter numbers, follow this procedure:

1. Enter CONFIGURATION mode.

Make sure the printer is “off-line.” Press and hold down the **CONFIG.** key. At the same time, press either **FINE ADJ.** key to move to the desired function (20 - 29). Two decimal points indicate the CONFIGURATION mode.

2. Release the CONFIG. key.

Find the parameter for the function (20 - 29) on the Operator Information Label inside the printer (Figure 4-5). If the interface configuration parameters are not recorded (they should have been written down when your printer was installed), find them in the Interface manual that shipped with your printer.

3. Set the parameter.

Use the **FINE ADJ.** keys to move to the desired parameter number.

4. Press ENTER

This sets the new parameter and the printer returns to the STATUS mode.

5. Set the next parameter.

Repeat steps 1 through 4 until all the parameters for functions 20 through 29 are entered.

HP-IB Selection

When selecting an HP-IB address, use the same basic procedure as configuring other printer features such as character set selection. To select an HP-IB address, follow this procedure:

1. Enter CONFIGURATION mode.

Make sure the printer is “off-line.” Press and hold down the **CONFIG.** key. At the same time, press either **FINE ADJ.** key to move to function “20.” The two decimal points indicate the CONFIGURATION mode.

2. Release the **CONFIG.** key.

The current HP-IB address shows up in the display window.

3. Set the parameter.

Use the **FINE ADJ.** keys to move to the desired address (0-7).

4. Press **ENTER**

This sets the address and the printer returns to the STATUS mode.

Note



The HP-IB cable loading is set at the factory to match a single cable length appropriate for the interface option selected. To match the HP-IB loading to a different length cable, call your Hewlett-Packard Service Representative.

5. Display Function 25.

This step allows configuring the HP-IB interface to three different protocols. Configuration should be performed in the following sequences:

Table 6-2. Configuration to Protocols

Function	Description
Ciper (Function 25=0)	This is used for 1000 (A/E/F/M), 3000 (3x/4x/5x/6x/7x,9xx), 9000 (SRM), 9845 C/C (SRM), 9000/800.
Block (Function 25=1)	This is used for 250/260 and the 64000 systems
Character (Function 26=19) (Function 27=83) (Function 25=2)	This mode is used for 9000 (200 series direct connect).

Test

A self-test is used to verify the printer's operational status. This self-test function can either be run from the Operator Control Panel or remotely using escape sequences. See the *HP256X Printer Family Technical Reference Manual, 02564-90905*, for details. You can run the standard self-test or choose a specific sub-test (individual sub-tests can only be executed from the Operator Control Panel). It is also possible to have the standard self-test or any of the sub-tests run continuously.

The printer must be "off-line" ("on-line" light not illuminated) to execute a self-test from the Operator Control Panel. If any error number appears in the display window, the self-test will not print.

Standard Self-Test

Note



After you press the **TEST** key to start a self-test, it takes a few seconds before the printer starts to print. While the self-test is running, the right-most decimal point blinks in the display window.

To perform the standard self-test (excluding interface tests), press the **TEST** key once to enter the TEST mode and then press **ENTER** to begin the test. To run a continuous standard self-test, press and hold down the **TEST** key for more than two seconds (until the number "4" appears in the display) and then press **ENTER**. You can exit a self-test any time by pressing either the **TEST** or **ON LINE** key.

In the back of this manual there is an simulated copy of a standard self-test printout. This printout lists power-on time and print time in hours; interface configuration information; the date code of some printed circuit assemblies; all the printer's installed character sets, bar codes, and graphics; and various characters to check print quality. The graphics part of the self-test is printed in the density set from the Operator Control Panel.

When the test is complete and there are no errors, the printer returns to the STATUS mode. If an error occurs during the test, an error number flashes in the display window. Refer to page 6-10, "Test Failure," for more information.

Continuous Test

To run a continuous self-test, press the **TEST** key and hold it down for more than two seconds until the display changes from "5" to "4." Release the **TEST** key and press **ENTER**. The self-test will run continuously. Exit the continuous test by pressing the **TEST** or **ON LINE** key.

Specific Sub-test Selection

Individual sub-tests can be selected and run from the Operator Control Panel. Table 6-3 lists the sub-tests available for your printer. To run a sub-test, press the **TEST** key to enter the TEST mode. A sub-test number appears in the display window and the right decimal point lights up indicating that the printer is in the TEST mode. Use either **FINE ADJ.** key to move to the desired sub-test number. Once the number is displayed, press **ENTER** to start the sub-test.

Table 6-3. Sub-Test Numbers

Sub-Test	Numbers
Standard Self-Test	0
Standard Ripple Print	1
Double Size Ripple Print	2
Compressed Ripple Print	3
High Density Ripple Print	4
Raster Graphics (herring bone)	5
High Density Raster Graphics (herring bone)	6
Printer Configuration print-out	8
600 LPM Ripple Print (upper case)	9
Draft character set ripple print	10
Digital	11
Flight time/forms thickness adjust pattern	15
Alternate Flight time adj. pattern	16
Interface Tests	30-38
Graphics tests (if installed)	40-48
Graphics print quality test	90

Example of a Continuous Sub-Test

To continuously run the Standard Ripple Print sub-test, follow the proceeding instructions:

1. Enter CONTINUOUS TEST mode.

Press the **TEST** key and hold it down for more than two seconds until the displayed number “5” changes to “4.” Release the **TEST** key.

2. Select the ripple print sub-test.

Press either **FINE ADJ.** key until number “1” is displayed.

3. Press ENTER

This begins the sub-test. Unless an error occurs, the sub-test will run continuously. Press the **TEST** key to stop the sub-test or **ON LINE** to start your job.

Test Failure

If there is a problem with the printer, an error number flashes in the display window. Error numbers indicate the general area in the printer where the failure occurs. If your printer fails the self-test, refer to Chapter 8 for a description of error codes or the Operator Information Label inside the printer (Figure 4-5).

USING THE PRINTER

This chapter explains the various features of your HP2563C/HP2564C printer: status mode, Operator Control Panel, indicator lights, fault conditions and print quality.

Your printer is controlled either through the Operator Control Panel, control codes or escape sequences. This manual only explains the Operator Control Panel. Refer to the *HP256X Printer Family Technical Reference Manual*, 02654-90905, for information on control codes.

Printer Modes

The HP2563C/HP2564C printer operates in four modes: STATUS, TEST, CONFIGURATION, and SET TOP OF FORM. Decimal points show up in the display window to indicate the mode (Figure 7-1).

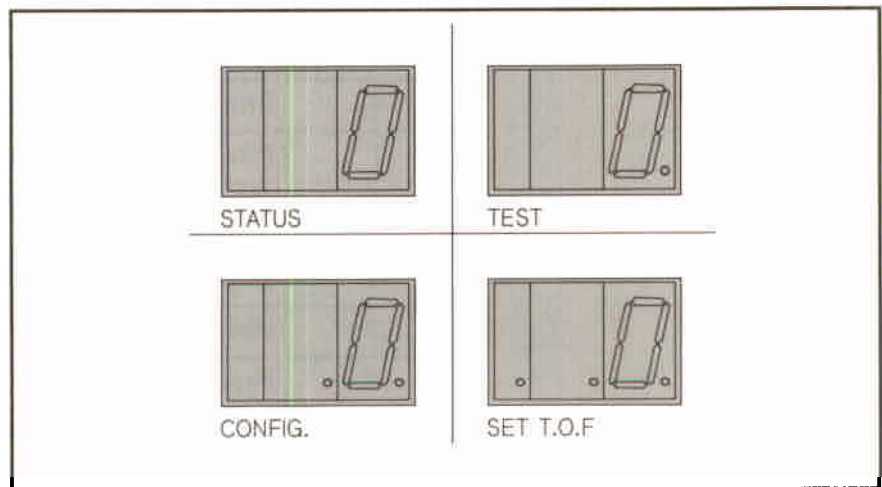


Figure 7-1. Display Modes

The numbers that display in each mode are listed in these sections of the manual: Printer Status (page 7-2), Test (page 6-8), Printer Configuration (page 6-1), and Set Top of Form (page 4-21).

Printer Status Mode

Under most conditions, the printer is in the STATUS mode and displays its current condition in the Operator Control Panel display window. When in the STATUS mode, none of the decimal points on the display are illuminated but a number is displayed. This number corresponds to a specific status described in Table 7-1.

Note



When the printer is in the SET TOP OF FORM mode, printer status is still displayed, but all three decimal points are illuminated.

Table 7-1. Printer Status Codes

Status Code	Description
0	Printer ready (also modem disconnected for serial interfaces)
1	Printer ready, modem connected (serial interfaces)
2	Silent run – data recovery for some HP-IB & Multipoint interfaces
4	Performs a sub-test in continuous mode
5	Performs a single pass sub-test
6	Print One Line (file data) activated
7	Print One Line (test pattern) activated
Operator Correctable Problems	
11	Printer out of paper
12	Platen open
13	Paper jam
Error numbers 14 through 91 indicate run time or self-test errors and are explained in Chapter 8 on page 8-5.	

Operator Controls and Indicators

This section explains the location and function of the printer keys and indicators. In the back of this manual there is a compact version of the Operator Control Panel to use as a quick reference guide. Figure 7-2 points out various parts of the printer.

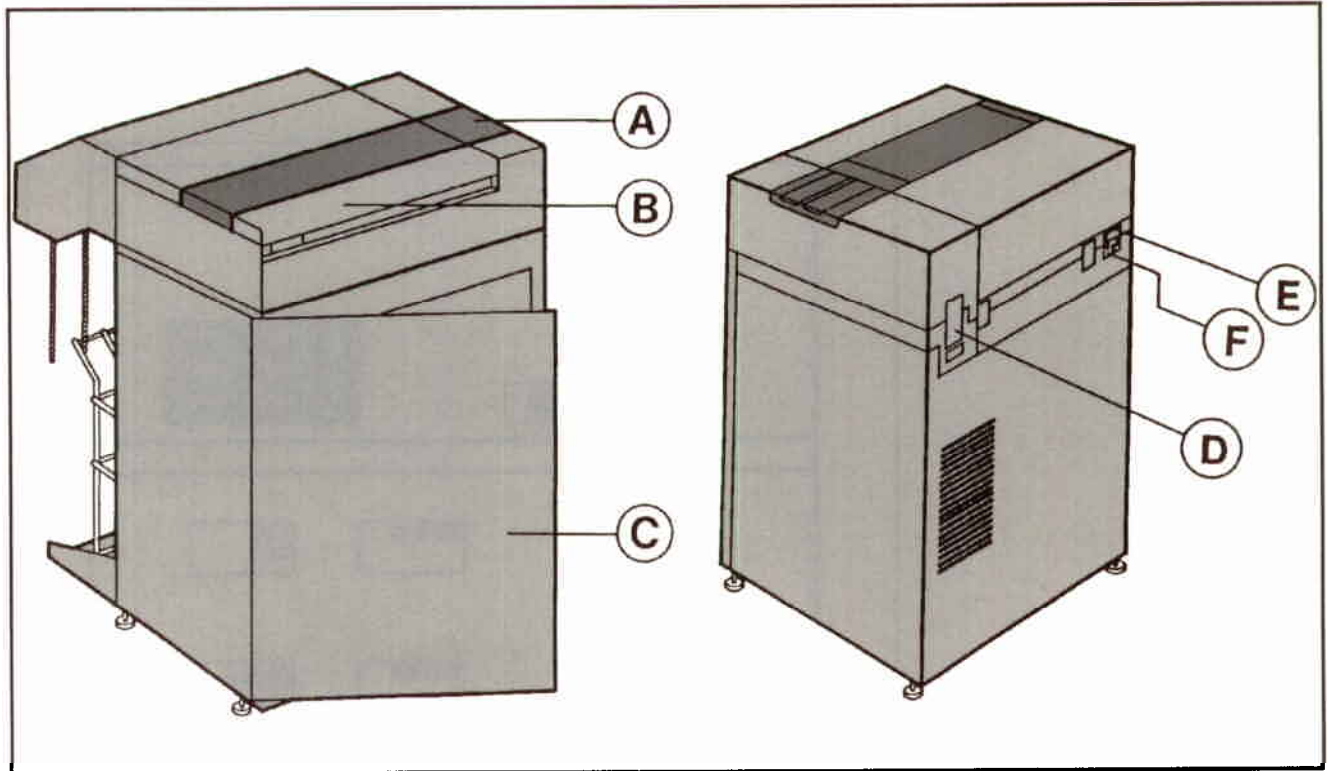


Figure 7-2. Parts of the Printer

- | | |
|----------------------------|-------------------------------|
| A = Operator Control Panel | D = Interface Port |
| B = Top Cover | E = Power ON/OFF (1/0) Switch |
| C = Front Access Door | F = Power Supply Input |

Figure 7-3 shows the keys on the Operator Control Panel.

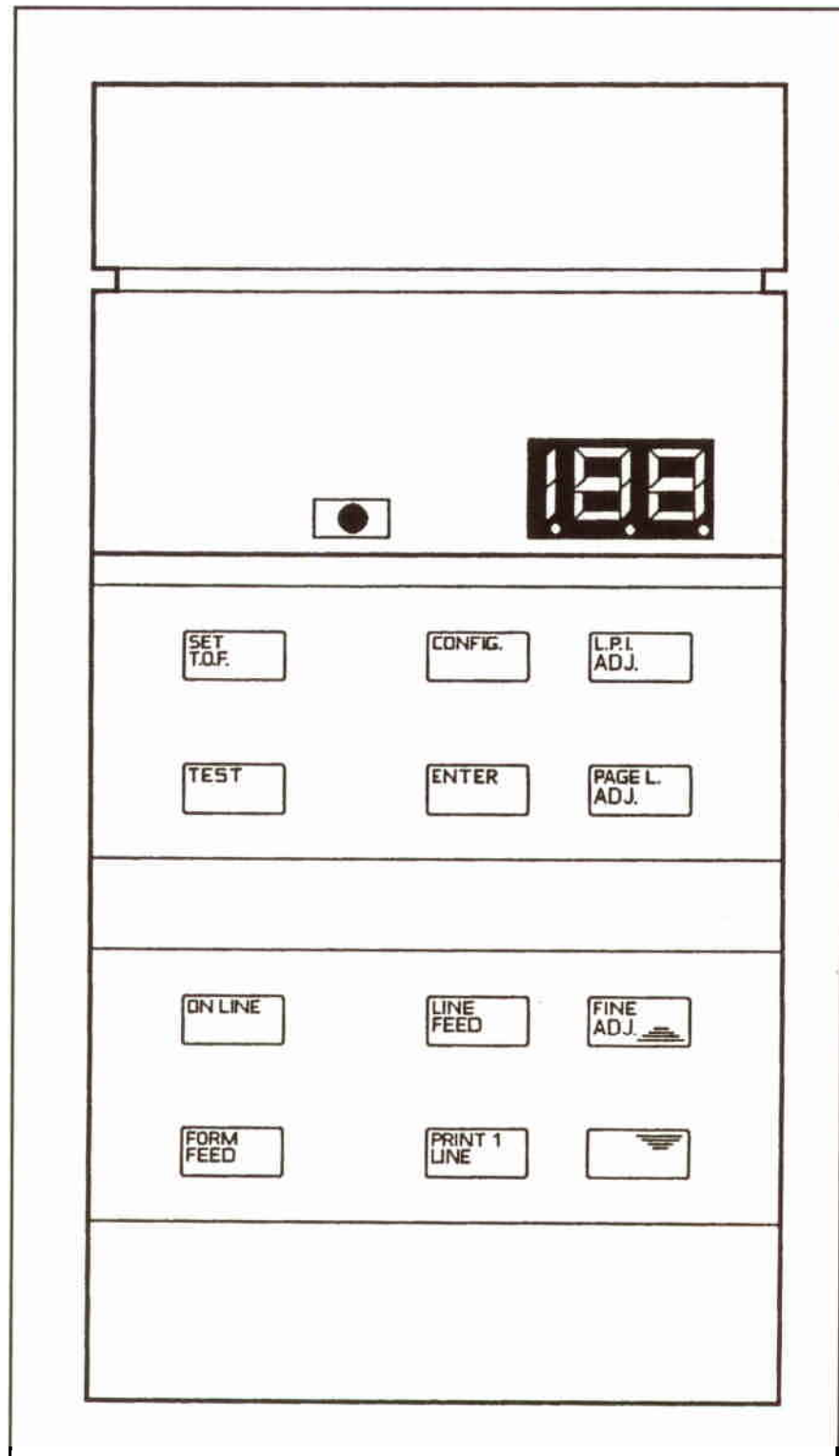


Figure 7-3. Operator Control Panel

ON-LINE INDICATOR

This yellow dot lights up in the display window when the printer is “on-line.” When the **ON LINE** key is pressed, control of the printer is turned over to the host and all other keys are disabled. The operator no longer controls the printer, the computer does.

DISPLAY WINDOW

The display window is located on the top portion of the Operator Control Panel (refer to Figure 7-3). The numbers that display in the window convey information for the different modes: STATUS, TEST, CONFIGURATION, and SET TOP OF FORM. The decimal points indicate the mode of the printer: no decimals are present when you are in the STATUS mode; the right decimal lights up when you are in the TEST mode; the middle and right decimals light up when you are in the CONFIGURATION mode; and all three decimals light up when you are in the SET TOP OF FORM mode.

Usually the printer is in the STATUS mode and displays a number indicating what the printer is doing. Refer to Table 7-1 for status code numbers and their descriptions.

When in the TEST mode, the number in the display window is the number of the sub-test that you want to run. When a test is running, the right decimal point blinks. (See page 6-8 for more information on the TEST mode.)

When you want the printer to perform different functions (change character sets, turn perforation skip “ON” or “OFF”, etc.) you must be in the CONFIGURATION mode. (Refer to page 6-1 for more information).

In the TEST and CONFIGURATION modes, you can change the numbers in the display by using the **FINE ADJ.** keys.

For information on how to SET TOP OF FORM, refer to page 4-21.

SET TOP OF FORM KEY:

SET T.O.F

This key sets the first line of print on your page. When pressed, all three decimal points light up in the display window indicating the SET TOP OF FORM mode. Refer to page 4-21 for details on operation of this key. If you want to exit this mode without making changes, press the **SET T.O.F.** key once again to return to the STATUS mode, or the **ON LINE** key to return the printer to host control.

If a paper jam error occurs, press **SET T.O.F.** and then **ENTER** to clear it. A “0” will show in the display window, however, the error will be displayed again if the condition is not corrected before exiting the mode. To clear a paper jam error, press the **SET T.O.F.** key. See “Setting Top of Form” on page 4-21 for more information.

CONFIGURATION KEY:**CONFIG.**

This key, in conjunction with the **FINE ADJ.** keys, lets you enter the CONFIGURATION mode. The CONFIGURATION mode is where you program the printer to perform various functions (interface configuration, page length representation, select character sets, etc.). Pressing the **CONFIG.** key alone will do nothing.

When the **CONFIG.** key is held down, a function number is displayed. This number can be changed by using either **FINE ADJ.** key to move to a new number. The middle and right decimal points light up to indicate that you are in this mode. When the **CONFIG.** key is released, the parameter associated with the function just displayed appears in the display window. If you wish to change parameters, use either **FINE ADJ.** key again to select a new parameter. Press **ENTER** to store the new parameter and exit the CONFIGURATION mode.

If you do not want to change the parameter, press the **CONFIG.** key a second time and the printer returns to the STATUS mode. You can also press the **ON LINE** key to return the printer to host control.

For more information on printer configuration, refer to page 6-1.

LPI ADJUST KEY:**L.P.I. ADJ.**

Pressing this key shows the printer default LPI (lines-per-inch) setting (6 or 8) in the display window. Since LPI is a function you can select, two decimal points light up indicating you are in the CONFIGURATION mode. Lines-per-inch can only be set to 6 or 8. Press either **FINE ADJ.** key to toggle between the two settings. When the desired setting is displayed, press the **ENTER** key to store the value. If you do not want to change the LPI setting, press **ENTER** to return to the STATUS mode or the **ON LINE** key to turn control over to the host. One additional note is that this setting may be overridden by escape sequences. For more information on setting LPI, refer to page 4-19.

TEST KEY:**TEST**

Press this key to enter the TEST mode where you can select sub-tests to check printer performance. To run a sub-test, press **TEST**, find the desired sub-test with either **FINE ADJ.** key, and then press **ENTER**. The sub-test will begin to print. Test failure is indicated by a flashing error number in the Operator Control Panel display window. A detailed description of the test function is presented on page 6-8 of this manual.

ENTER KEY:**ENTER**

When in the CONFIGURATION mode, pressing the **ENTER** key stores the selected parameter. When the **ENTER** key is pressed in the TEST mode, the printer starts running a test. In the SET TOP OF FORM mode, pressing the **ENTER** key sets the new Top of Form (then the printer returns to the STATUS mode).

**PAGE LENGTH
ADJUST KEY:**

PAGE L. ADJ

This key displays the physical forms length in either physical text lines-per page, or in $\frac{1}{2}$ inch increments. Although the printer is in the CONFIGURATION mode, usually one decimal point lights up (for example, 11.5 for 11 $\frac{1}{2}$ inches). You can adjust the forms length setting by pressing either **FINE ADJ.** key to select the value, then press **ENTER** to store it and return to the STATUS mode. Refer to page 4-16 for more information on setting forms length. **If you use programmable VFC to set the page length, the page length setting on the Operator Control Panel must match the VFC setting. Otherwise, the printer will not properly sense paper-out.**

ON LINE KEY:

ON LINE

This key gives control of the printer to the operator ("off-line") or to the computer system or host ("on-line"). A yellow dot lights up in the display window when the printer is "on-line." The keys on the Operator Control Panel only work when the printer is "off-line." Press **ON LINE** to exit from the CONFIGURATION, TEST, SET TOP OF FORM, LPI Adjust and Page Length Adjust modes. The printer saves the previous configuration and Top of Form setting, then turns control over to the host. If you press **ON LINE** while running a self-test, it will abort the test and then turn control over to the host. The printer will not go "on-line" if there is an error condition present.

LINE FEED KEY:

LINE FEED

When the **LINE FEED** key is pressed, the printer advances to the next print line. If you hold down the key, the printer pauses momentarily, then advances paper at an increased rate. As long as you hold down the key, it will advance paper. The **LINE FEED** key functions only when the printer is "off-line" and will not work in the CONFIGURATION or TEST mode.

FORM FEED KEY:

FORM FEED

This key advances the paper to the next Top of Form position. If pressed once, the printer moves one form feed. If you hold down the key, the printer performs continuous form feeds. This functions only when the printer is "off-line" and will not work in the CONFIGURATION or TEST mode.

PRINT 1 LINE KEY:

PRINT 1 LINE

This key prints one line of data on the installed form at the current line position. If you hold down the key, the printer prints continuous lines of data.

Note



If you print a single line and want to look at it, press the line feed key to advance the paper so that the line is visible above the ribbon shield. This is not necessary when printing multiple lines.

The **PRINT 1 LINE** key produces different data depending on the printer mode. If the printer is in the TEST mode and you press **PRINT 1 LINE**, status mode 7 displays and a test pattern prints to aid forms alignment. If the printer is not in the TEST mode and you press **PRINT 1 LINE**, the printer goes “on-line” momentarily, displays status mode 6, prints one line of data, and then returns “off-line.” If no data is available from the interface or host within 1.5 seconds, the printer returns “off-line” without printing.

FINE ADJUST (UP/DN) KEYS:

FINE ADJ.

The two **FINE ADJ.** keys move the paper up or down in small increments. When either key is held down, the printer keeps moving the page until the key is released. The keys are also used to increment (up) and decrement (down) the numbers in the display window when in the TEST, CONFIGURATION, LPI Adjust and Page Length Adjust modes.

Forms Loading Controls

Tractor Brake

This lever is located on the outward side of both tractors. When it is released (pulled forward), the tractors slide left and right to accommodate varying forms width. Pushing the brake up locks the tractor into position after adjustment (Figure 7-4, A).

Forms Thickness Knob

This knob adjusts the platen-to-hammer gap for maximum print quality with various thicknesses of paper and forms (Figure 7-4, B). Refer to page 4-13 for detailed operating instructions.

Caution



Be careful not to allow the platen lever to slam closed. This can cause misalignment and possible damage to the forms thickness adjustment mechanism.

Platen Lever

The platen lever is located on the left side of the print mechanism (next to the Forms Thickness Knob) and opens and closes the platen so that paper and ribbon may be loaded or removed (Figure 7-4, C). Tear paper off below the paper loading slot and then eject the remaining paper using the **FORM FEED** key.

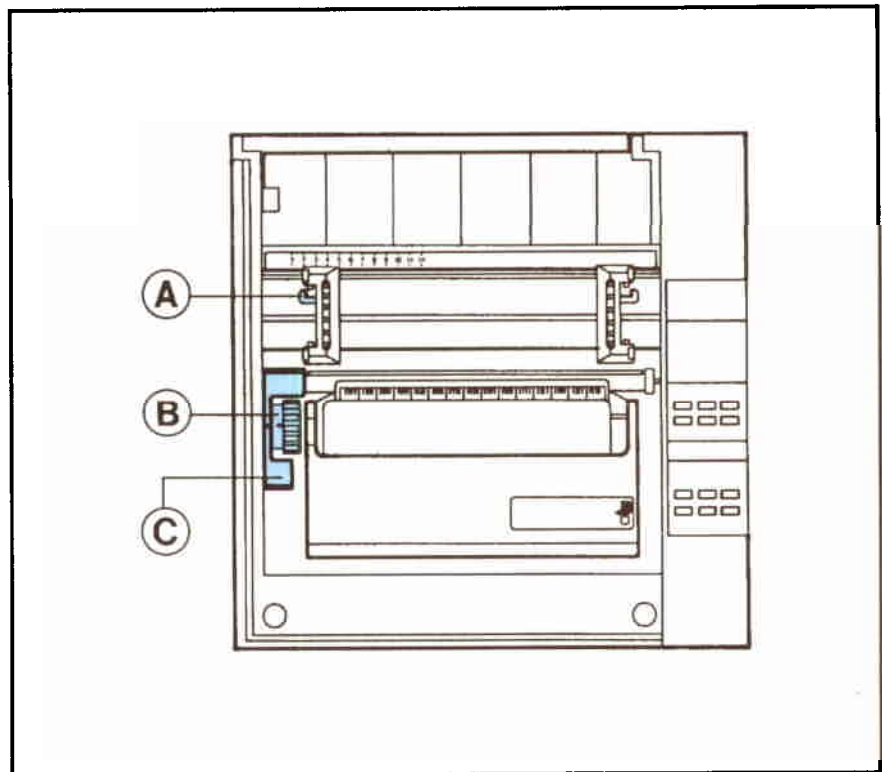


Figure 7-4. Forms Loading Controls

Note



Paper should not be pulled down through the platen when the platen gap is closed. Damage to the ribbon shield may result in print quality problems.

Power-On Parameters and Power-Fail Recovery

The HP2563C/HP2564C printer has no power fail indicator. When the main power ON/OFF switch (located on the back of printer) is toggled "OFF" (0) and "ON" (1) or a loss of power to the printer occurs, some of the printer's configuration settings are retained in non-volatile memory, and some are returned to defaults.

Values Retained In Printer Memory:

When power is restored to the printer, the following configuration settings return to the same state as before the power-off condition:

- "On-line" and "off-line" in the same state as before losing power
- Primary and secondary character sets stay selected as configured from the Operator Control Panel (1, 2)*
- Vertical line spacing (6/8 LPI) stays as selected from the Operator Control Panel*
- Physical page length remains at the same value as before power loss*
- Page length representation as selected from the Operator Control Panel (7)*
- Interface configuration (20-29)**
- Label Card configuration (85-89)**
- Enable/Disable Label Card (80)**
- Printronix P-series Linefeed emulation (81)*
- Graphics speed (51)*
- Graphics Horizontal Density (52)*
- Difficult Forms Mode (53)**
- Perforation skip (60)*

Values Returning to Default State:

Following a power-off state, these printer functions revert to the following conditions:

- Paper moves to the next Top of Form position
- Print buffer clears
- Standard VFC channel assignments selected*
- Left margin offset at zero*
- Display functions off (61)*

*these configuration settings **do not** affect printer communications but may vary the appearance of printer output.

these configuration settings **affect printer communications and should be verified anytime communication problems occur.

The recoverability of the HP2563C/HP2564C printer following a power failure depends on which system the printer is connected to. When using an HP-IB or Multipoint interface on some systems, the printer will display the number "2" (silent run) and may take several minutes to recover the job to the point where the power-fail occurred. **DO NOT DISTURB THE JOB OR PRINTER!** Recovery time varies with the size of the job and the system load. Refer to the appropriate system manual for more information on this subject. If only the printer loses power, the power-on parameters will be set as indicated on the previous page.

Reset The reset operation causes the printer to default to the power-on parameters as explained above. It is intended to be used only in the case of a self-test error or by a Hewlett-Packard Service Representative.

Reset is performed by pressing the **FORM FEED** and **L.P.I. ADJ.** keys together. When reset, the printer moves paper to the Top of Form, reverts to the power-on parameters, and stays "off-line." A programmable reset can also be performed which affects the printer similarly except that the printer remains "on-line."

More information about the programmable reset is found in the *HP256X Printer Family Technical Reference Manual, 02564-90905*.

On-Line/Off-Line When the printer is "on-line," data and commands can be transmitted to it from a controlling device or host (computer system). When it is "off-line," data and commands from the controlling device are ignored by the printer. The printer must be "off-line" in order to use any key other than **ON LINE** on the Operator Control Panel.

The printer is placed "on-line" and "off-line" by using the **ON LINE** key on the Operator Control Panel. Fault conditions such as paper out, platen open, etc. cause the printer to turn "off-line." When this happens, the printer will not return "on-line" until the error has been corrected and the **ON LINE** key is pressed.

Graphics Printing

The HP2563C/HP2564C printer raster graphics printing capability is escape sequence driven. Consult the *HP256X Printer Family Technical Reference Manual, 02564-90905*, for graphics printing information.

The HP2563C/HP2564C printer also offers optional QMS Magnum printing capabilities. Refer to the *HP Label Card Installation and Operator's Manual, 26062-90901*, for further information.

Vertical Forms Control

Vertical Forms Control (VFC) allows the user to skip to a predefined line on a page of print with only one command instead of using a number of line feeds. This capability can greatly increase the speed of a print job.

Your printer is equipped with a standard and a programmable VFC. When the printer is powered-up or reset, it defaults to standard VFC.

The standard VFC contained in the HP2563C/HP2564C printer is a computed VFC, meaning that the VFC automatically adjusts its skip lengths when the form length is changed. The standard VFC channel definitions are listed in the following table. The terms “Top of Form” and “Bottom of Form” refer to the top and bottom of text on the page. More information about the programmable VFC is found in the *HP256X Printer Family Technical Reference Manual*, 02564-90905.

Table 7-2. VFC Channel Definitions

VFC Channel	Channel Definition
0	Conditional Top of Physical Page
1	Top of Form (line 1)
2	Bottom of Form (BOF) last
3	Single space (lines 1, 2, 3, 4....)
4	Double space (lines 1, 3, 5, 7....)
5	Triple space (lines 1, 4, 7, 10....)
6	Half Form
7	Quarter Form
8	Tenth space (lines 1, 11, 21, 31....)
9	Bottom of Form
10	Bottom of Form - one line (BOF - 1)
11	Top of Form - one line (TOF - 1)
12	Top of Form
13	Seven space (lines 1, 8, 15....)
14	Six space (lines 1, 7, 13....)
15	Five space (lines 1, 6, 11....)
16	Four space (lines 1, 5, 9, ...)

Preventive Maintenance

Maintain the printer in a state of general cleanliness. Accumulated dust, bits of paper, and lint can lead to serious problems.

Watch for indications of physical damage and report problems or potential problems to your Hewlett-Packard Service Representative.

Optimizing Print Quality

There are two basic areas of the printer that have a major impact on print quality:

- Forms thickness adjustment.
- Ribbon condition and positioning.

Forms Thickness Adjustment

The forms thickness adjustment is used to vary the print gap; the distance between the print mechanism hammers and the platen. (The platen is a flat metal plate which provides the striking surface behind the paper.) **This adjustment is the primary means of obtaining the best print quality.** When forms thickness is poorly adjusted, print quality is affected. Too large a print gap causes “dot slalom” (jagged vertical lines) and, ultimately, print dropouts (some characters or parts of characters not printing at all). Too small a print gap causes the ink to smudge. Extremely tight print gaps can also cause paper jams.

The procedure for adjusting print gap is described in detail in “Adjusting Forms Thickness” on page 4-13. Use the Forms Thickness Adjustment knob to find the optimum print gap for the thickness of paper you are using. The best adjustment is usually as tight as possible without causing the ink to smudge.

Ribbon Path and Condition

The second, most likely, cause of print quality problems is the ribbon. Ribbon problems occur because of the condition of the ribbon, and the ribbon’s positioning and path through the printer.

If the ribbon has been used extensively or stored improperly, the ink may not transfer well. This results in print that is too light and not crisp and clean looking. The solution is to replace the ribbon cartridge (refer to page 4-1 for this procedure).

The ribbon may also have been installed improperly, or moved away from its correct position. It should be inserted between the metal ribbon shield and the print mechanism (not between the ribbon shield and the paper). The ribbon needs to be straight (not folded in any way) and the tension tight enough to prevent movement away from the print mechanism hammers.

Another ribbon problem is that the ribbon is packed too tightly inside the ribbon cartridge. As a result, it does not move freely through the cartridge. To check this, remove the cartridge (see page 4-2) and turn the knurled knob clockwise. If the knob will not turn easily, the ribbon is too tight. Loosen the ribbon by lightly tapping the end opposite the knob on a table top or other hard, horizontal surface.

IN CASE OF DIFFICULTY

You should not attempt to perform any maintenance on the HP2563C/HP2564C printer except routine operator maintenance and limited maintenance of the print mechanism. However, if the printer does not function properly, there are some things you can do before scheduling a service call:

- **Is an error number displayed?** The HP2563C/HP2564C printer signals an error condition by flashing an error code number in the display window. If a number is displayed, refer to the following:
 - Error numbers 11 through 13: These are operator correctable errors. Refer to “Printer Errors” on page 8-3.
 - Error numbers 14 through FF: These are non-operator correctable errors. Refer to “Printer Errors” on page 8-3 before calling your Hewlett-Packard Service Representative.
- **No error number displayed?** If you are having difficulty with the printer and no error number is displayed, refer to “General Problems” on page 8-2.

General Problems

Following are some printer problems that may not necessarily cause an error number to light up in the display window. Each problem description is followed by some suggestions for possible solutions:

Printer Will Not Power On

- Display window is blank.
 - Make sure the power cord is plugged in.
 - Verify that the power outlet current is “ON.”
 - Verify that the printer’s main power ON/OFF switch is “ON.”

Paper Does Not Advance

- Examine paper path for foreign material or sticky substances.
- Paper is not properly loaded (see page 4-7).
 - Examine the paper and remove any damaged sheets.
 - Check tractors, paper alignment, and forms thickness setting (refer to pages 4-11 to 4-15).
 - Inspect the paper tractor holes for damage (see page 5-9).
 - Make sure paper is not hung up in the paper box.

Paper Tearing Or Separating On Multi-part Form

- Verify that the forms thickness adjustment is correct for the loaded form (refer to page 4-13).
- Check paper tension in the tractors (see page 4-12).
- Check paper for binding or dragging. Reload if necessary.
- Make sure the area where paper is inserted into the printer (platen serpentine) is free from foreign objects (HP2564C only).
- Reload another box of forms from a different lot number.

Print Quality Is Erratic, Very Light, Or Smudged

- Check the Forms Thickness Adjustment for optimum setting (page 4-13). If the print is light and you have closed the platen as far as it will go, you may have a platen gap adjustment problem. At one time the platen lever may have slammed closed, which affects the adjustment range. Call your Hewlett-Packard Service Representative for assistance. If the print is smudged, increase the forms thickness setting to open the platen gap.
- Replace the ribbon cartridge (see page 4-5).

The Printer Will Not Print

- Check the interface configuration (read Chapter 6). Refer to your Interface manual for information.
- Make sure the printer is “on-line.”
- Check the interface cable for proper connection.
- Check system status and spoolers (if applicable).

Status Code 2

Status Code 2 displays after a paper jam is cleared or power is restored following a power failure.

- The printer is recovering your print job and preparing itself to print at the point where the error occurred. **DO NOT DISTURB THE JOB OR PRINTER!** This process may take several minutes, depending on the size of the job and the current capacity of the computer. (This condition is only true when using an HP-IB or Multipoint interface on some systems.)

Character Imprints

Character imprints on paper, but no ink (or little ink) is transferred.

- The ribbon has dropped below or risen above the hammers so the hammers are not applying ink to the page. Adjust the forms thickness knob (see page 4-13) one or two positions toward “J” and tighten the ribbon tension (remove ribbon and tighten the knurled knob).

Printer Errors

All fault conditions are signified by flashing numbers in the display window on the Operator Control Panel. These error indications are provided to help you locate and possibly correct problems which prevent normal operation of the printer. When any fault condition exists, the printer automatically goes “off-line” and cannot be put “on-line” until the fault is corrected. Listed below are the error conditions and corresponding error numbers that show up in the display window.

Error numbers displayed on the HP2563C/HP2564C printer range from 11 through FF. There are several categories of errors:

- Operator correctable errors - error numbers 11, 12 and 13.
- Run time errors - error numbers 14 - 19 and 80 - 91.
- Self-test errors - error numbers 20 - 69.
- System protocol errors - error numbers C0 - CF*.
- Formatter errors - error numbers F0 - FF*.

*These alphanumeric (hexadecimal) error codes indicate possible system problems and should be referred to your Hewlett-Packard Service Representative.

Operator Correctable Errors

ERROR NO. 11: Out of Paper

This error number indicates that the printer is out of paper. A paper-out condition is detected by the absence of paper in print column 15. When paper-out is detected, the printer finishes printing the current page, advances to Top of Form, indicates error 11 (paper-out) and then goes "off-line" until paper is reloaded. This error is cleared when either the **ON LINE** or **SET T.O.F** key (and **ENTER**) is pressed following paper reloading (the platen must be closed). No data is lost when paper-out occurs. Refer to page 4-7 for paper loading instructions.

Note



If you set forms length in programmable VFC, make sure the same setting is entered in the front panel. Otherwise, **the printer will continue to print when paper out occurs**. This results in a loss of data. Refer to the *HP256X Technical Reference Manual, 02564-90905*, for more information on programmable VFC.

ERROR NO. 12: Platen Open

This error number indicates that the platen is open and needs to be closed before running the printer.

ERROR NO. 13: Paper Jam

A paper jam error indicates that paper is not passing correctly through the tractors. After the paper jam is corrected, press the **SET T.O.F** key, align the new Top of Form with the ribbon shield, and press **ENTER**. This procedure clears the error from the display and gets the printer ready to be placed "on-line" for normal operation resumed. Refer to page 4-7 for information on loading paper correctly.

If you are using an HP-IB interface on some systems, the display may indicate number "2" (silent run) and may take several minutes to recover after a paper jam. This is because the printer must recycle through the job until it reaches the point where the paper jam occurred. **DO NOT DISTURB THE JOB OR PRINTER!** The time required for this process varies with the size of the job and the computer system work load.

Non-Operator Correctable Errors

ERRORS NO. 14 - FF: Non-Operator Correctable

When in the TEST mode, any test error will cause an error number to flash in the display window. Errors 14 through 19 and 80 through FF can occur during normal printer operation. Error numbers between 20 and 69 occur when the printer has failed its TEST routine. Refer to page 8-8 of this manual for more information concerning these printer errors and what to do about them.

RUN TIME ERRORS

Run time errors can occur at any time when the printer is in normal operation (run time errors do not include 11, 12 or 13). Table 8-1 describes the errors:

Table 8-1. Run Time Errors

Error #	Description
14	Print mechanism problem
15	Graphics run-time fail
16	Interface run-time fail
17	Printer time out
19	Attempt to go on line in CE mode*
80	Power-On problem
81-82	Slave self-test select error
83	Internal firmware problem
86	Modem connect malfunction
90	Interface slave time-out
91	Graphics slave time-out

*Customer Engineer test mode

If you have run time errors, write down the error number and its associated fail point as this helps identify the problem (see page 8-8 for more information). Check the paper path for binds and try to clear the error by powering off or resetting the printer. If the error clears, perform a few line feeds or form feeds, check the forms thickness setting, and perform a self-test. If the self-test passes and print quality is acceptable, set the Top of Form and continue operation. Keep a record of the incident and monitor the printer for future occurrences. If the error does not clear, or reoccurs for unexplained reasons, contact your Hewlett-Packard Service Representative for assistance.

Self-Test Failure

If a self-test routine fails, perform a reset (press the **FORM FEED** and **L.P.I. ADJ.** keys simultaneously) and try the test again. If the test fails a second time, **report the test error number and its associated fail point to your Hewlett-Packard Service Representative.** (See “Finding the Fail Point” on page 8-8.) Table 8-2 lists the self-test error numbers.

Note



Before calling for service (and before powering off the printer), record the error number and its associated fail point number to give to the Service Representative.

Table 8-2. Self-Test Error Numbers

Error #	Description
*20	Power-On
*21	Static Encoder
*22	Printbar Motor
*28	Active Encoder
() 29	Configuration Print Out
() 30	Standard Ripple Print
() 31	Double Size Ripple Print
() 32	Compressed Ripple Print
() 33	High Density Ripple Print
() 34	Raster Graphics
() 36	Black Out Print
** 37	Print Quality Print
** 39	600 LPM Ripple Print
() 40	DGL ROM Test
* 41	Digital Test
** 41	RAM Test
* 42	Printbar Hammer Test
** 42	ROM Firmware Test
** 43	Timer I/C Test
** 44	DGL Test
** 46	Printbar Hammer Test
() 50-59	Interface Errors
* 51	Multipoint <i>Interface Errors</i>
() 60-69	Graphics Errors

* = HP2563C only

** = HP2564C only

() = HP2563C and HP2564C

Calling for Help

As previously mentioned, recurring printer error numbers 14 or greater should be reported to your Hewlett-Packard Service Representative. However, **before calling, (and before powering-off the printer), record the error number and its associated fail point.**

Finding the Fail Point

The fail point number is a subset of the error number. It helps the Service Representative pinpoint the problem with your printer. With this information, the Service Representative can partially diagnose the problem on the phone. If the printer fails the self-test two times in a row, or if a run-time error number is displayed, find the fail point number and record it before powering the printer off or calling your Service Representative. To find the fail point number, press and hold down the **ENTER** key. The fail point number shows up in the display window. A fail point number is required for error numbers 14 through 91, or letters C0 through FF.

PRINTER SPECIFICATIONS

Certification

The HP2563C/HP2564C line printer is listed by Underwriters Laboratories, Inc. in the following categories with respective guide designations: Electronic Data Processing Equipment (EMRT) and Office Appliances and Business Equipment (QAOT).

The HP2563C/HP2564C printer is certified to Canadian Standards Association (CSA) guidelines for data processing equipment.

This product is designed and tested to comply with IEC 950. Additionally, this printer is designed to meet European Safety and RFI/EMC standards for Electronic Data Processing Equipment. This includes Germany's VDE 0871 Level B. Any questions concerning regulatory compliance should be directed to your local Hewlett-Packard Sales Office.

Hiermit wird bescheinigt, daß das Gerät HP2563C/HP2564C in Übereinstimmung mit den Bestimmungen der Postverfügung 1046/84 funkenstörtöist.

Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

Wird das Gerät innerhalb einer Anlage zusammen mit arderen Geräten betrieben, so muß bei Inanspruchnahme der "Allgemeinen (Betriebs-) Genehmigung" nach der DBP-Verfügung 1046/48 die gesamt Anlage der Grenzwertklasse B nach DIN/VDE 0871/6.78 und den Auflagen nach ¶ 2 der DBP-Verfügung 1046/1984 entsprechen.

Printer Overview

The HP2563C/HP2564C printer uses dot-matrix technology which allows a high degree of printing flexibility. The basis of the printing mechanism in this printer is a print bar containing print hammers. The print bar oscillates horizontally to allow dot placement in any of the allowable dot positions across the page. Dot-matrix technology provides the flexibility to adjust character formation; allowing multiple languages, line draw characters, special characters and graphics images to be printed.

Dot-Matrix vs. Full-Font Printers

A major difference between dot-matrix printers and full-font printers is the print gap, or the distance between the print hammer in its retracted position and the platen. While the hammers of full-font printers fire only once to form an entire character, the hammer of a dot-matrix printer fires an average of 13 times and as many as 26 times to form a standard-density character. The high-repetition rates that dot-matrix hammers operate at, in order to print at speeds comparable to full-font printers, requires operation at a significantly smaller print gap. Figure A-1 gives a comparison of typical dot-matrix and full-font print gaps.

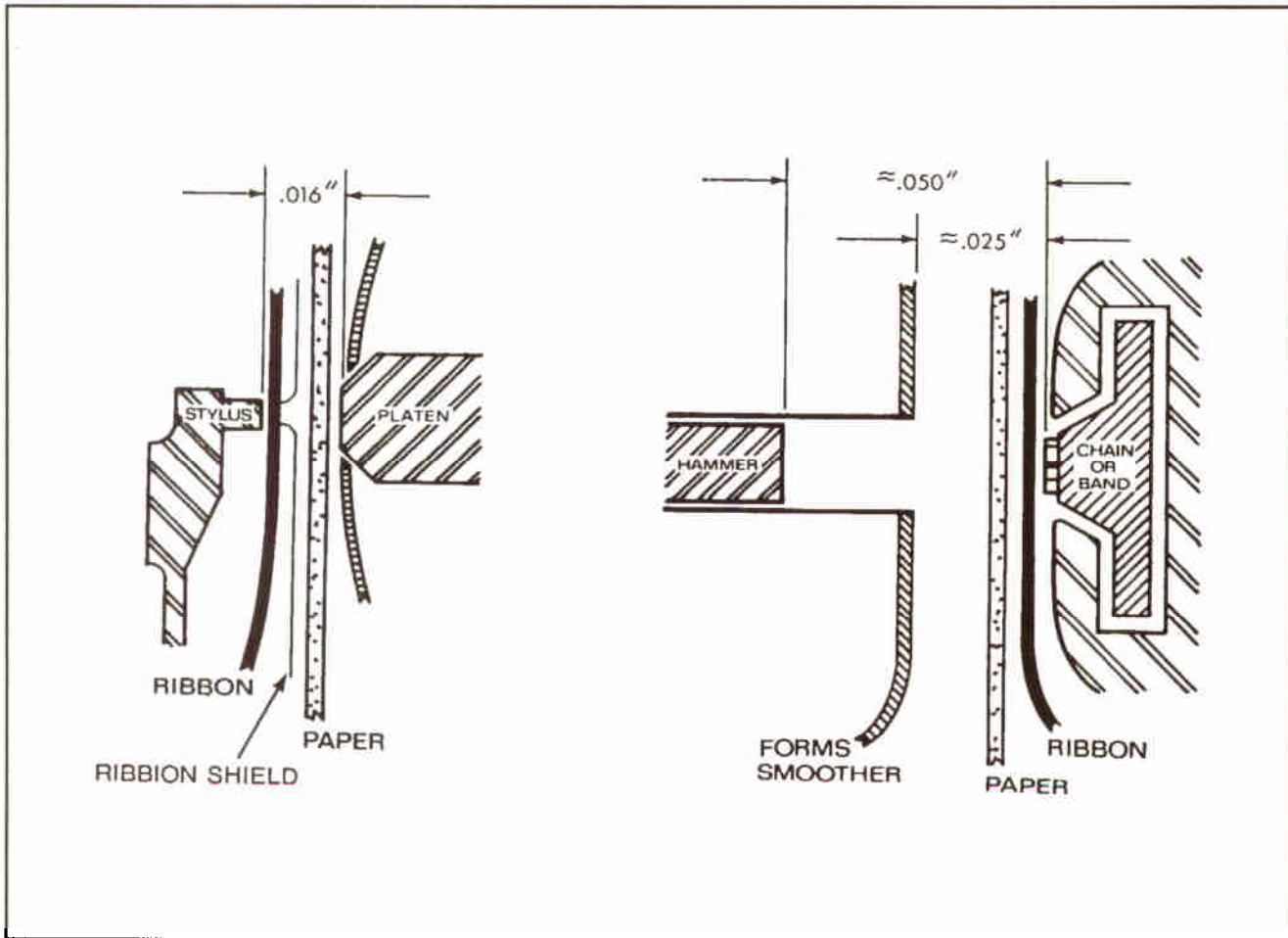


Figure A-1. Dot-Matrix and Full-Font Print Gap Comparison

For most standard paper and multi-part forms, the smaller print gap of dot-matrix printers does not present any problems. However, some specialty forms may cause unacceptable paper jam rates and/or print smearing even though they perform satisfactorily in full-font printers. For a detailed discussion of the restrictions of specialty forms, refer to Appendix B, "Specialty Forms Specifications."

Physical Specifications

Width:	59.5 cm (23.4 in)
Depth:	76.1/29.95 cm (56.25 in)
Height:	100 cm (39.37 in)
Weight:	160 lbs. (HP2563C) 178 lbs. (HP2564C)

The printer needs adequate clearance on all sides to allow free air circulation for cooling (minimum = 6 inches).

Electrical Characteristics

Input (VAC)	Frequency (Hz)
100 (+5%, -10%)	50/60 (+10%, -5%)
120 (+5%, -10%)	50/60 (+10%, -5%)
220 (+5%, -10%)	50/60 (+10%, -5%)
240 (+5%, -10%)	50/60 (+10% -5%)

Power Cable Length: Two metres (approximately 6.5 feet)

Power Consumption:	HP2564C	HP2563C
	110 W non-printing	80 W non-printing
	240 W printing (typical)	230 W printing (typical)
	1100 VA printing (maximum)	600 VA printing (maximum)

Performance Specifications

These two tables specify the print speed and matrix sizes for the HP2563C/HP2564C printer.

Note



Print speed may vary with application and configuration. If you purchased a unique formatter, your printer operating speeds will be different from the standard operating speeds listed in Table A-1 and A-2.

Table A-1. Print Speed and Matrix Sizes - HP2563C

Type of Print	Print Speed (lpm*)	Pitch (cpi*)	Matrix Size
High Speed Draft (upper case) (based on 100 character column)	420	10	4 x 5
High Speed Draft (lower case)	300	10	4 x 7
Normal (upper case)	300	10	5/13 x 7
Normal (lower case)	233	10	5/13 x 9
High Density (upper case)	140	10	7/19 x 14
High Density (lower case)	117	10	7/19 x 18
Compressed (upper case)	300	12	4/10 x 7
Compressed (upper case)	300	13.3	4/10 x 7
Compressed (upper case)	300	15	4/10 x 7
Compressed (upper case)	300	16.7	4/10 x 7
Compressed (lower case)	233	12	4/10 x 9
Compressed (lower case)	233	13.3	4/10 x 9
Compressed (lower case)	233	15	4/10 x 9
Compressed (lower case)	233	16.7	4/10 x 9
Double size (upper case)	133	5	10/26 x 14
Double size (lower case)	109	5	10/26 x 18
Bar Codes	14.5 ipm		
Raster Graphics	29/14.5 ipm**		70 x 72
Raster Graphics	7.2 ipm only		140 x 144

**High/low density graphics modes

*lpi = line-per-minute

*cpi = characters-per-inch

*ipm = inch-per-minute

Table A-2. Print Speed and Matrix Sizes - HP2564C

Type of Print	Print Speed (lpm*)	Pitch (cpi*)	Matrix Size
High Speed Draft (upper case)	840	10 cpi	4 x 5
High Speed Draft (lower case)	600	10 cpi	4 x 7
Normal (upper case)	600	10	5/13 x 7
Normal (lower case)	467/221**	10	5/13 x 9
High Density (upper case)	300/145**	10	7/19 x 14
High Density (lower case)	233/113**	10	7/19 x 18
Compressed (upper case)	525	12	4/10 x 7
Compressed (upper case)	525	13.3	4/10 x 7
Compressed (upper case)	525	15	4/10 x 7
Compressed (upper case)	525	16.7	4/10 x 7
Compressed (lower case)	420	12	4/10 x 9
Compressed (lower case)	420	13.3	4/10 x 9
Compressed (lower case)	420	15	4/10 x 9
Compressed (lower case)	420	16.7	4/10 x 9
Double size (upper case)	133	5	10/26 x 14
Double size (lower case)	109	5	10/26 x 18
Bar Codes	29 ipm		
Raster Graphics	58/29 ipm***		70 x 72
Raster Graphics	14/9 ipm***		140 x 144

*lpm - lines-per-minute

*cpi - characters-per-inch

*ipm - inches-per-minute

**Depending on the width of the character

***High/low density graphics mode

Dot Size: 0.015 inch

Dot Density:**Table A-3. Dot Density**

Dot Density	Description
High Speed Draft	110 dots\inch horizontal 56 dots\inch vertical
Normal	210 dots\inch horizontal 72 dots\inch vertical
High	210 dots\inch horizontal 144 dots\inch vertical
Compressed	12, 15 cpi = 180 dots\inch horizontal 13.3, 16.7 cpi = 200 dots\inch horizontal 72 dots\inch vertical
Graphics	60 or 70 dots\inch horizontal (low) 120 or 140 dots\inch horizontal (high) 72 or 144 dots\inch vertical (60 and 120 dots\inch on HP2564C ONLY)
Bar Codes	110 dots\inch horizontal 144 dots\inch vertical

Paper Slew Rate: 14 inches/second for HP2563C; 15 inches/second for HP2564C

Multi-Part Forms: 1 - 6 (.024 inches maximum pack thickness)
(carbon & carbonless)

Vertical Forms Control: 16 programmable channels

**Environmental
Specifications****Temperature:**

Operating: (printer and ribbon)	10° to 50° C (50 to 122° F)
Storage: (printer)	-40° to 75° C (-40° to 167° F)
Survival: (power-on)	-20° to 69° C (-4° to 149° F)
Storage: (ribbon)	10° to 50° C (50° to 122° F)

Relative Humidity (printer): Non-operating - 5% to 95% non-condensing
Operating - 30% to 80% (recommended)

Audible Noise: Declared noise emissions in accordance with ISO 9296:

HP2563C:

Printing	Idling
LWAd (Sound Power) = 6.9 bels	LWAd (Sound Power) = 5.4 bels
LpAm (Average Sound Pressure at 4 bystander positions = 52.3 dB)	LpAm (Average Sound Pressure at 4 bystander positions = 38 dB)

HP2564C:

Printing	Idling
LWAd (Sound Power) = 7.2 bels	LWAd (Sound Power) = 5.5 bels
LpAm (Average Sound Pressure at 4 bystander positions = 55 dB)	LpAm (Average Sound Pressure at 4 bystander positions = 38 dB)

PAPER SPECIFICATIONS

This section describes the paper specifications which must be met to ensure optimum performance of the HP2563C/HP2564C printer.

Hewlett-Packard conforms to ANSI standard X3.96-1983, "American National Forms Information Systems for Continuous Business Forms," and ISO Recommendation No. 2784, which cover common form widths and depths, standards for sprocket feed holes and margins, as well as other basic tolerances.

All measurements should be made at 20° to 26° C (68° to 78° F) and 45% to 55% relative humidity.

The printer uses continuous fan-fold edge-perforated paper varying in width from 3.0 (7.6 cm) to 16.75 inches (42.4 cm). Although the printer accepts paper as wide as 16.75 inches, the farthest right it can print is 14.75 inches (37.32 cm).

Standard Forms Specifications

Paper Sizes:	Maximum form width:	16.75 inches (42.4 cm) edge-to-edge
	Minimum form width:	3 inches (7.6 cm) edge-to-edge
	Maximum left margin:	0 - 1.6 inches (0-4 cm)
	Maximum right margin:	2 or more inches (5 or more cm)
	Maximum forms length:	16 inches (40.6 cm)
	Minimum forms length:	2 inches (5 cm)
	Minimum printing width:	13.2 inches (33.53 cm)

Paper Basis Weights:

Single part:

15 - 100 pound (57 - 380 gm/sq meter)

Multipart:

Paper: 12 pound (46 gm/sq. meter), up to 6 total pages

Carbons: 8 pound (30 gm/sq. meter), up to 6 total pages

Pack thickness: Maximum, .024 inches (.61 mm) total

Carbonless multipart: Up to 4 part forms

Due to variations in the manufacturing processes, quality, and composition of paper, Hewlett-Packard cannot guarantee satisfactory performance with all papers and forms. Special paper, including multipart forms, carbonless forms, card stock, and labels should be tested for satisfactory feeding, registration and print quality prior to purchase. The forms used in the printer should not vary in thickness across the printable surface. If paper is to be used in humidity extremes (greater than 55% or less than 20%) it should first be tested. Paper to be used at high humidity should be thoroughly tested for satisfactory feeding and handling. Paper to be used at low humidity should be tested to determine if static buildup must be eliminated for proper stacking.

Specialty Forms Specifications

This section of paper specifications is intended to familiarize and alert you to some of the characteristics of specialty forms which may cause unsatisfactory performance of the printer. **This paper specification is NOT intended as a substitute for actual testing.**

Note



All specialty forms, including special single-part paper, multi-part forms, forms with glue strips, carbonless forms, card stock, and labels should be tested for satisfactory feeding, registration, paper stacking, and print quality prior to purchase.

Form Thickness Uniformity

Because of the small print gap in dot-matrix printers, these printers are less tolerant of form thickness variations than are full-font printers. Sometimes these thickness variations can be caused by defects such as bubbles or wrinkles. Other times they are due to varying paper composition or the number of parts within the form.

Nominal differences in thickness and compressibility make it impossible to specify allowable thickness variations exactly. The following cases are intended to serve as a guide, but all forms with thickness variations must be tested for satisfactory performance.

Case 1: Form Defect

In order to avoid hammer dragging, the overall thickness of a form plus any defects should be no more than as shown in Figure B-1 ($.015 + T/2$ inch; T =thickness).

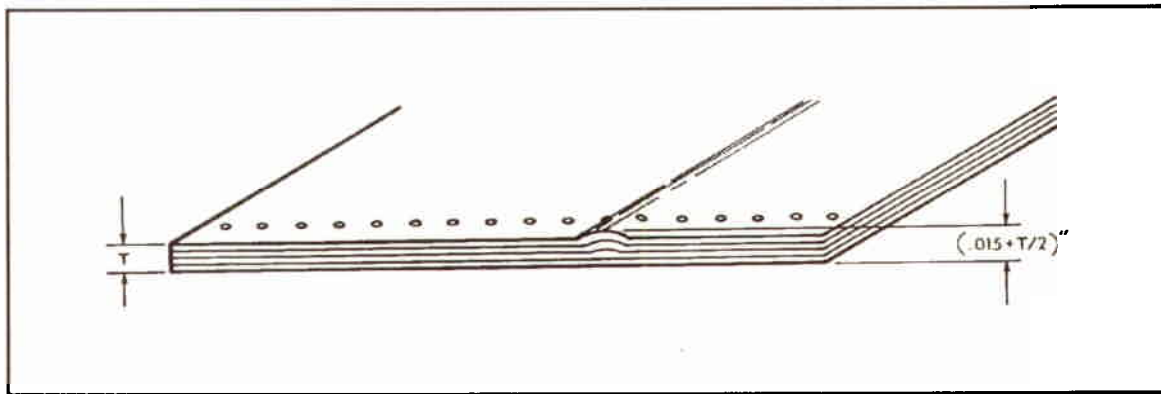


Figure B-1. Maximum Height of Form Defects

Case 2: Varying Thickness Forms: Printing on All Areas

In order to ensure satisfactory print quality on all areas of the form, the difference in thickness between the thickest and thinnest section of the form should be no more than .008 inch (as shown in Figure B-2). The print gap should be adjusted to optimize print quality on all thicknesses of the form.

Since dot-matrix printing is optimized when printing at one gap size, print quality can, in some cases, be compromised when printing on forms of varying thickness. This is especially true on the copy sheets of multi-part forms. When printing on forms of varying thickness, the maximum depth of depression defects on the thick part of the form is also .008 inch.

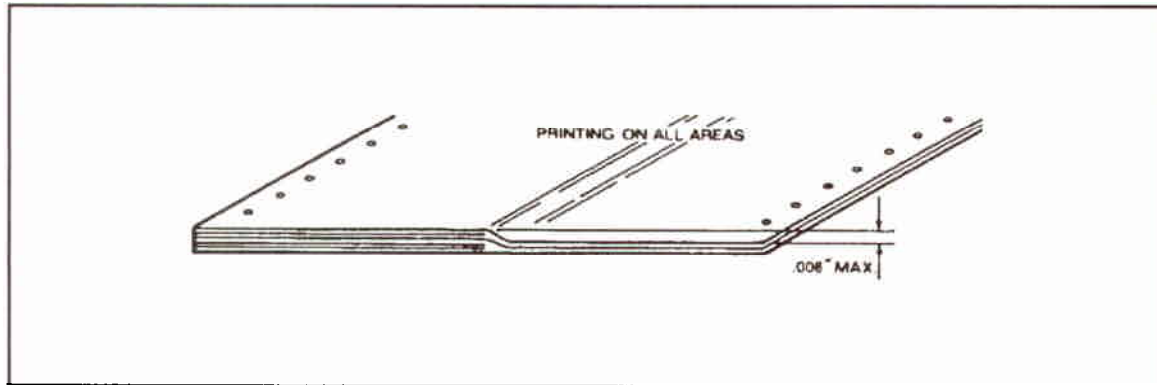


Figure B-2. Maximum Thickness Variation for All Areas of a Special Form

Case 3: Varying Thickness Forms: Printing on Thin Areas

In order to avoid smearing on the thickest area of the form when printing on the thin area only, the difference in thickness between the thinnest area and the thickest should be no more than as shown in Figure B-3 ($.015 - T/2$ inch; T =thickness). For forms with larger variations in thickness, the print gap may be opened beyond the optimum gap to reduce smearing, but print quality on the thinner areas will degrade accordingly.

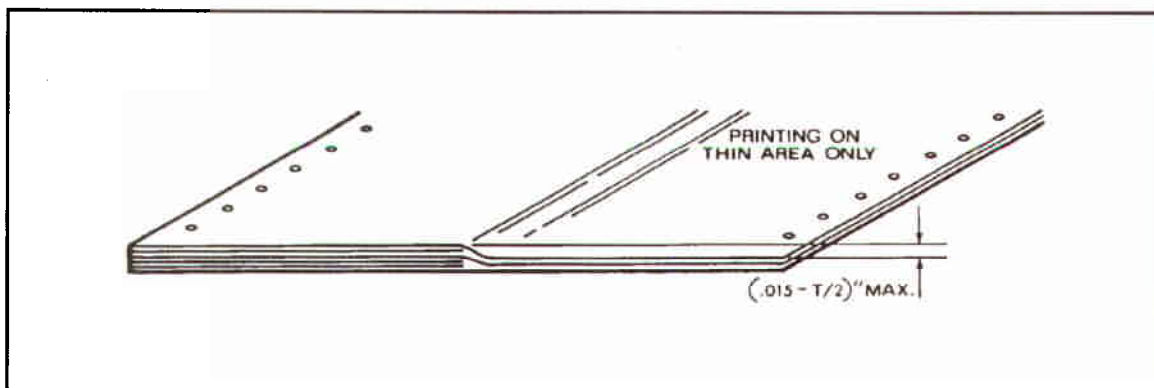


Figure B-3. Maximum Thickness Variation for the Thin Areas of a Special Form

Case 4: Varying Thickness Forms: Printing on Thickest Areas

In this case, as long as the thickest area of a form does not exceed the specifications listed (see "Paper Weights" page B-2), there is no lower limit to the thickness of the thinnest area as long as it is sufficient to support the form as it is fed through the printer.

Perforation Projection

The perforation projection (perforation tent) is measured by laying the form on a flat surface as shown in Figure B-4. Perforation projections exceeding the value shown ($.015 + T/2$ inch; T =thickness) can result in excessive smearing at the perforations and/or an unacceptable jam rate. This is because the perforations may snag on the hammers as they are slewed through the print area. Opening the print gap will reduce smearing or jamming, but it may also degrade print quality.

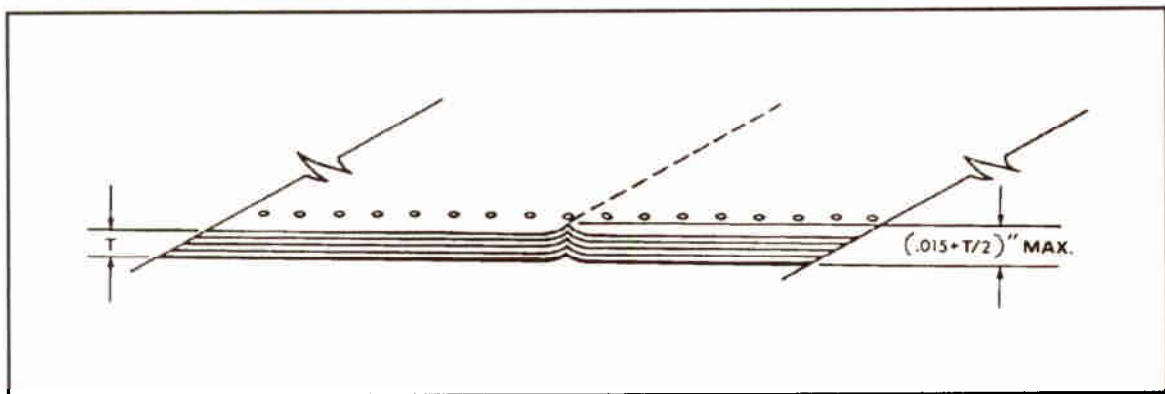


Figure B-4. Maximum Allowable Form Perforation Projection

Other Special Forms

Forms with windows, cutouts, flaps, attached cards, and other specialized items may jam excessively in the printer. The only way to make sure these forms can be used in the printer, is to test them thoroughly for optimum performance before purchase.

Labels

Most standard labels work well in the printer as long as they meet the specifications outlined in this section. Due to variations in the label products offered, however, all labels should be tested for satisfactory performance before purchase.

Conclusion

Since it is impossible to test all form types available for use in the printer, Hewlett-Packard recommends that paper conform to the specifications outlined in this document for optimum printer performance.

Once again, this paper specification is NOT intended as a substitute for actual testing. **ALL SPECIALTY FORMS, INCLUDING SPECIAL SINGLE-PART PAPER, MULTIPART FORMS, FORMS WITH GLUE STRIPS, CARBONLESS FORMS, CARD STOCK, AND LABELS SHOULD BE TESTED FOR SATISFACTORY FEEDING, AND PRINT QUALITY PRIOR TO PURCHASE.** For best results in selecting standard or specialty forms, consult a forms vendor who can ensure conformance to these specifications and recommend cost-effective purchases.

TROUBLESHOOTING PAPER STACKING PROBLEMS

Troubleshooting Checklist

Some of the more common paper stacking problems are listed below, along with possible solutions. Find the question that describes your problem and use the checklist to direct you to the solution.

Is one side of the paper stack growing faster than another?

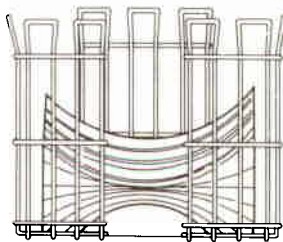
YES – check the following:

- Make sure the forms break is centered in the basket.
- Is the paper loaded correctly in the printer? To check the loading procedure, refer to page 4-7.
- Make sure the paper is moving unhindered through the print mechanism. Is the input paper stack aligned correctly with the printer paper position? If the input paper stack is still in the box, is the paper catching on the sides of the box?
- Is the paper tension in the tractors too loose or too tight? Refer to “Adjusting Forms Position” on page 4-12 for tractor information.
- Is the forms thickness setting correct? Read the section, “Adjusting Forms Thickness,” on page 4-13 to find out.
- Is the platen clean and free from foreign material?
- Compress the paper stack.
- If you still have the problem, contact your service representative for assistance.

Are the sides of the paper stack growing faster than the center of the stack (smiling)?

YES – check the following:

- Make sure the forms break is positioned correctly in the paper basket. For correct positioning, refer to the table, “Forms Break Placement,” on page 5-4.
- Remove the input paper from the box. Refer to page 4-7 for further information.
- Is the paper tension in the tractors too loose or too tight? Refer to “Adjusting Forms Position” on page 4-12 for tractor information.

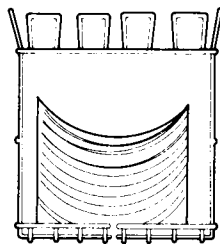


Front View

- Is the forms thickness setting correct for your paper? Check the procedure in “Adjusting Forms Thickness” on page 4-13.
- Inspect the platen for any foreign material.
- Make sure the paper tractor holes are not torn or distorted. Also, sometimes the paper holes are misstepped or placed in the wrong position on your paper. Make sure the holes are in their normal location.
- Is your paper within the paper specifications for this printer? Refer to Chapter 2, “Getting the Most From Your Printer and Paper,” to find out.
- Is this the second time you have run this paper through the printer? Double-sided printing can cause the paper tractor holes to tear.
- Check the temperature and humidity of your area. You may be running outside the specifications for your environment. Refer to Chapter 2, “Getting The Most From Your Printer and Paper.”
- If you still have the problem, contact your service representative for assistance.

Is the paper stack growing faster at the folds than the center of the stack (u'ing)?

YES – check the following:



Side View

- Make sure the forms break is positioned correctly in the paper basket. For correct positioning, refer to the table, “Forms Break Placement,” on page 5-4.
- Make sure the forms are not folding against the perforated line. The folds should fold with the direction of the crease.
- Are all eight stacking aid chains hanging freely?
- Change the box of paper. Sometimes paper will resist folding and will not fold correctly along the perforated edge as it stacks in the paper basket. Try another box from the same manufacturer (sometimes a batch of paper may be bad), and if that does not work, try a different vendor's paper. Call your paper vendor and explain the problem. He may have some information for you about the paper you are using. For short term use, compress the paper stack regularly to keep it from jamming.
- If you still have the problem, contact your service representative for assistance.

My paper is jammed.

Check the following:

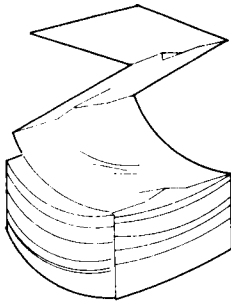
- Are you using the correct paper for your printer? Refer to your printer operator's manual for paper recommendations.
- Remove the input paper from its box. If you cannot remove the box, pull the sides of the box away from the paper.
- Is your paper loaded correctly through the print mechanism? See page 4-7 for the correct loading procedure.
- Inspect the tractor paper holes. Are the holes distorted or torn? Refer to "Adjusting Forms Position" on page 4-12 for information.
- Are the paper holes correctly positioned in the tractor strips or are they misaligned? Sometimes paper is improperly manufactured and the paper holes do not line up on the page. If so, check your other boxes of paper for the same problem. Either call your paper vendor or use a box of paper with paper holes in the correct position.
- Is your forms thickness setting correct? Follow the instructions in "Adjusting Forms Thickness" on page 4-13 to make sure.
- Clean the platen and inspect for any foreign material.
- Inspect the path of the paper as it feeds into the paper basket. Does it fall smoothly or is there something that is hanging it up? Is it stacking correctly in the paper basket?
- Is the paper stack higher than 16 inches in the basket? If so, the stack is too high and will cause paper to back up into the printer and jam.
- Make sure the ground wire is intact and attached to the printer
- If you still have the problem, contact your service representative for assistance.

Customer Support



For any problems or questions that this manual does not address, contact your service representative. Your service representative is familiar with your printer and stacking aid and should be able to provide you with the help and information you need.

Glossary



Beaming

In the paper stack, a crease forms between two sheets of paper perpendicular to the natural fold.

Forms Break

The steel, arch-shaped device that sits inside the paper basket to prevent smiling and u'ing of the stack.

Misfold

A misfold occurs when the paper folds incorrectly in the paper basket. Paper will usually continue to stack, however, the operator will need to straighten out the misfold.

Operator Intervention

Any time the operator has to make adjustments to or fix a problem with the printer or paper stack.

Paper Handling

The overall ability of the printer to process forms and stack them in the paper basket. The efficiency of the printer should be measured by the amount of paper stacking and jamming problems.

Paper Jam

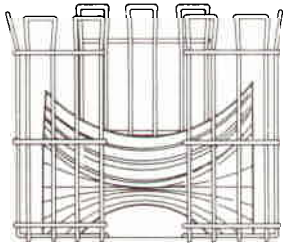
Any problem that prevents the paper to flow smoothly through the printer. Jams can be caused by paper pulling out of the tractor lugs, paper stacking incorrectly in the basket, paper tension too loose or too tight, or paper tearing prematurely along the perforated folds.

Paper Sizes

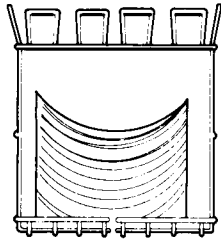
The distance from the left edge of the paper to the right edge, including the tractor strips, is called the forms width. The distance between perforation folds is called the forms length.

Perforation

The line on the paper that when torn separates the sheets. It also sets the direction the paper should fold.



Front View



Side View

Smiling

When the output paper stacks faster at the edges of the stack than the center of the basket. Actually takes on a smiling appearance.

U'ing

When the output paper stacks faster at the perforated folds than in the center of the basket. This is the opposite of smiling.

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U



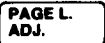

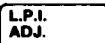

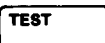



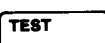

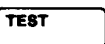



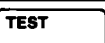



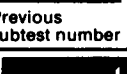


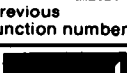

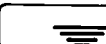



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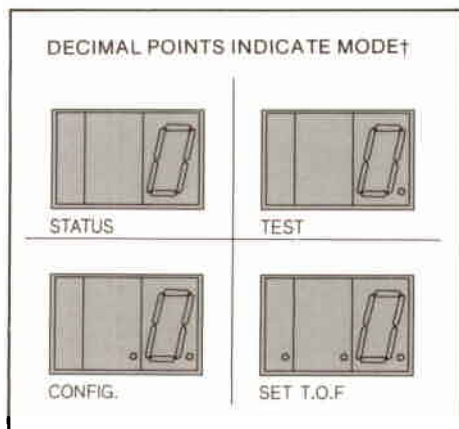
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DESIRED OPERATION ★★	PRESS	PRINTER DISPLAYS		UNTIL PRINTER DISPLAYS	PRESS	
SET PAGE LENGTH (LINES PER PAGE)		 (6 Lines per inch)				
SET PAGE LENGTH (IN INCHES)		 Current page length setting				
SET L.P.I. (LINES PER INCH)		 Current LPI setting				
PRINT 1 LINE (TEST PATTERN)		 Previous function number				
(FILE DATA) MUST BE ON-LINE		 Print 1 line status (external)				
SINGLE SELF-TEST		 Test status				
CONTINUOUS SELF-TEST	 Press and hold for 2 seconds	 Test mode status				
SINGLE SUBTEST		 Previous subtest number	If display flashes, check error number and repeat. If error repeats, call service representative			
CONTINUOUS SUBTEST	 Press and hold for 2 seconds — Release TEST key.	 Previous subtest number	If display flashes, check error number and repeat. If error repeats, call service representative			
DISPLAY CONFIGURATION	 and  Hold keys down	★  Previous function number	Operation complete			
CHANGE CONFIGURATION	 and  Hold keys down	★  Previous function number	or  or 	 Desired parameter		 Current status Operation complete



†Flashing display indicates error condition

★★ On-line indicator must be off to perform any of these operations

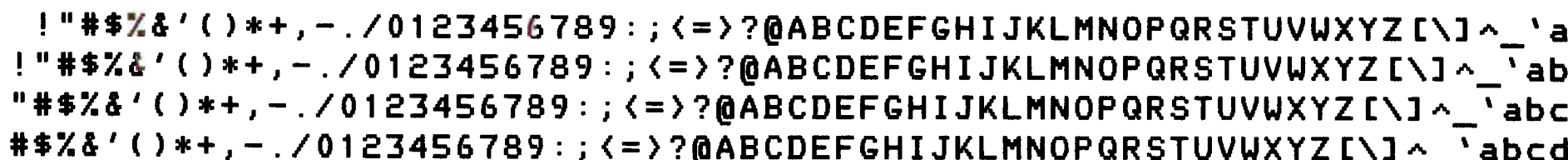
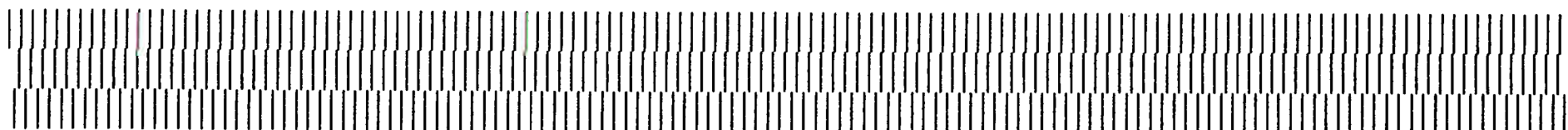
CONFIGURATION FUNCTION NUMBERS

★ FUNCTIONS

- 1 Select primary character set
- 2 Select secondary character set
- 7 Select page length representation
- 0-29 Configure interface
- 50 Disconnect modem
- 51 Graphics speed
- 52 Horizontal graphics density
- 53 Difficult forms mode
- 60 Perforation skip
- 61 Display functions
- 80 Enable/Disable Inline Converter
- 81 Enable/Disable Printronix Linefeed Emulation
- 5-89 Configure Label Card

▲ PARAMETERS

- (0-95)
- (0-95)
- (0, 1)
- 00-FF
- 0, 1
- 0, 1
- 60, 70
- 0, 1
- 0, 1
- 0, 1
- 0, 1
- 0, 1
- 00-FF

[illegible]

PRINT TIME: 000009 HOURS ON TIME: 001049 HOURS
HP-IB DEVICE ADDRESS = 4, CIPER PROTOCOL

0	<pre> ! " # \$ % & ' () * + , - . / 0 1 2 3 4 5 6 7 8 9 ; : < = > ? @ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [\] ^ _ ` a b c d e f g h i j k l m n o p q r s t u v w x y z { } ~ A A e e e i i ' ' ' ~ ~ 0 0 e - y y ' C c n n j j x x s s f f a a e e u u a a e e o o u u i i o o n n i i o o u u i i o o a a g g a a i i z z o o s s i i u u y y p p - m n - z z a a o o k k ± ISOS: FRENCH=48, GERMAN=49, SWEDISH/FINNISH=50, DANISH/NORWEGIAN=51, SPANISH=52, BRITISH=53. ! " # \$ % & ' () * + , - . / 0 1 2 3 4 5 6 7 8 9 ; : < = > ? @ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [\] ^ _ ` a b c d e f g h i j k l m n o p q r s t u v w x y z { } ~ A A e e e i i ' ' ' ~ ~ 0 0 e - y y ' C c n n j j x x s s f f a a e e u u a a e e o o u u i i o o n n i i o o u u i i o o a a g g a a i i z z o o s s i i u u y y p p - m n - z z a a o o k k ± </pre>
16	
17	
20	
21	
22	

[illegible][illegible]

CODE 3 OF 9 (DEFAULT) 0123456789

CODE 3 OF 9 (DEFAULT) 0123456789



INDUSTRIAL 2 OF 5 0123456789



INTERLEAVED 2 OF 5 0123456789



UPCA 01234567890



UPCE 01234500009



EAN8 0123456



EAN13 **012345678901**



NOTE

This is a scaled-down replica of a self-test printout.
Actual contents on your printer may vary.

02564-90988
Edition 1
E0390
Printed in U.S.A. 3/90



02564-90988